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DEVELOPMENT AT THE TURN OF OUR CENTURY

GRACIELA CHICHILNISKY
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I. Introduction

Today's rapid and profound international evolution requires an update of the development agenda. As East-West relations alter radically and forge history, new trends in global capital markets, telecommunications and new technologies erode inexorably the old structures and alter permanently the economic landscape. As the century turns, traditional issues of transfer of resources, debt rescheduling and the access to industrial markets must be re-examined. New items emerge on the development agenda:

1. The advent and explosive growth of the international securities market, a historically new trend in global capital markets, offers an opportunity to harness the enormous power of today's diffuse global capital movements towards the advancement of development goals;
2. Achieving leapfrogging technological change, and the simultaneous abandonment of traditional relative advantages, particularly in export markets;
3. Taking the initiative, capturing and controlling the environmental challenge in a way that serves the long term interests of the developing countries;
4. Implementing economic policies to take advantage of the new opportunities opened by the merger of Eastern and Western Europe.

This paper will address the first two of these development issues: capital markets and technologies, and it will examine them in connection with other more traditional issues:

- Voluntary transfers of resources;
- The debt crisis;
- The securing of markets for developing countries' exports.

Economic data and analysis supporting the arguments of this paper are provided in *The Evolving International Economy,* G. Chichilnisky and G.M. Heal (1987); *Telecommunications and Global Capital Markets,* G. Chichilnisky (1989); and in *Oil in the International Economy,* Chichilnisky and Heal, (1989).

II. Capital Requirements for Growth: Capturing and Diffusing Global Capital

Historically, foreign investment into developing countries has been large in relation to the size of the economy. It was often politically disruptive and

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socially indigestible. During the last ten years, a major change has taken place in global capital markets: small movements of capital started to occur through the advent and explosive growth of international securities trading, the trading of bonds and equity by citizens of one country into other countries. This growth of international securities trading is a new phenomenon which has major implications for industrial and developing countries alike, some of which will be explored in this paper.

Large investments originating in one country and realized in another have typically created conflicts between domestic and foreign interests. The inability of national governments to control the impact of such capital flows on their economies, often due to the disparity of their sizes, has led developing countries to choose foreign borrowing over foreign investment. The recurrence of debt crisis, and the current acute pains from short term debt servicing and the repayment of the outstanding debt, are the price paid for this choice.

It is useful to borrow an analogy from business practices. Borrowing vs. investment is a typical quandry in a growing firm which needs to raise capital to finance its expansion. The firm often faces the same issues faced by the countries in our previous paragraph: Investors are preferable because they share the fortune of the firm and therefore have the same incentives as the firm; but, on the other side, investors also share the control of the firm's destiny. Large investors take over control. Borrowing,on the other hand, leaves control intact, but only up to the point where the repayment or servicing become problematic. At this point the situation reverses and all the control advantages gained from borrowing are lost.In the case of a country, national sovereignity and independent domestic policies are often at risk.

The firm's typical solution is to seek many small investors. Control issues are then minimized, since the small investor is less able or desirous to exercise control. These small investors also share the fortune of the firm so that in bad times they are on its side and not against it as the lenders could be. Throughout the world, mature capital markets have evolved a complete and rapid system for raising investment of this sort. The crucial issue is the regulation of those markets: the better regulated the market is, the more efficient and succesful. US capital markets, with their zealous attitudes towards the prevention of market manipulation (e.g., insider trading) are the best example of more regulation leading to better and more efficient markets. Despite commonly held views, regulation does not undermine the market efficiency. There is no contradiction between regulation and efficient markets if the regulation is right.

My recommendation for developing countries which faces debt problems, is not to hope for or rely upon voluntary resource transfers from the industrial countries, although in certain extreme cases (e.g. Africa) this is in practice the only short term solution; nor to rely on further borrowing. It is clear that a day-to-day resolution to the debt issue has to be found and this involves negotiation, renegotiation and further renegotiation to decrease the principal and to cap

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interest rates. However, the aim of this paper is not to address these negotiations, but rather the longer term issue which will have to be faced during the next decade: how to prevent the repetition or worsening of debt crisis. The issue is how to deal with the need for capital without precipitating a crisis.

Firstly, one must set clearly the position that the need for capital is not a problem in itself, nor it is a problem to borrow capital from capital-rich countries to finance expansion and growth. Basic economic theory establishes the principle that in an efficient world economy, developing countries will borrow capital from capital-richer countries.

However, short term borrowing from private institutions, and in floating exchange rates, does not work. As an example, the Banco Central do Brasil *Boletim* reports that 89.1% of the 120 billion US dollar Brazilian debt is owed to private banks, with approximately 75% having less than 5 years maturity, and 94% a maturity less than 6–10 years. The fact that most developing countries' debt is short term, dollar denominated, and owed to private institutions can be said to account for most of the debt crisis today, see Chichilnisky and Heal (1987).

The recommendation is that developing countries should de-emphasize both further borrowing and the hope or reliance on aid or voluntary transfer of resources, in favour of diffuse private foreign investment into local firms through well regulated capital markets. However, for this policy to be successful, other policies must be implemented simultaneously:

It is essential to improve the regulation of domestic capital markets and to enforce such regulation, so as to prevent market manipulation, (e.g., insider trading, and the cornering of new issues by raiders). Both the U.S. public and the Pakistani public are familiar with the issues. While it is generally known that the Karachi Stock Exchange has grown strongly in the last few years, aided by a developing new issue market, it is still small in scale and vulnerable to manipulation. The capitalization of the Karachi Stock Exchange is approximately US$ 2 billion. U.S. financial markets are amongst the largest in the world, but they have also been vulnerable to such practices. In the Karachi Stock Exchange, however, there are few investors and the market does not always have the depth required for large new issues. In addition, according to the IMF estimates, about $1.7 billion is invested by Pakistanis overseas, and the Asian Development Bank (and Merrill Lynch) is to create a $50m Pakistan Fund to attract some of this fund to be invested in companies listed in Pakistan. Similar funds have been created in Thailand, South Korea and the Philippines. Yet less than 1% of the Pakistani population of 120 million owns shares, a total of less than 700,000 investors (*Financial Times*, October 26, 1989). It is reported that in India large companies have several thousand investors while the number reported for Pakistan is about 250. These are the type of issues that should be carefully monitored and the expansion of this market must be encouraged by the appropriate regulation.

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I have recommended taking advantage of a historical breakthrough in international capital market trends, the advent and rapid growth of international securities trading, to expand domestic capital markets and capture diffuse global capital flows into the economy. This would encourage private foreign capital investment into local companies, and domestic capital into domestic investment. Because of the characteristics of global securities trading, both of these can be made compatible with national control of capital and production. Such capital inflow can provide capital needed for the country's expansion without creating a conflict between domestic and foreign interests, and it could help decrease foreign borrowing. Foreign investors who own small proportions of domestic companies will have the country's economic gains at heart, quite in contrast to the foreign investor who owns most of one sector of the economy, particularly an export oriented labour intensive sector. Such investors may have economic interests which are opposed to those of the national economy, and must be avoided.

For example, consider a large foreign company with a dominating presence in the banana exports from Central America. This firm may prefer a depressed local market with cheap labour rather than a strong domestic market with more skilled and therefore more expensive labor, because for such a firm local labor is only a source of inputs and not a component of its final demand. For such a firm, poverty is a relative advantage: such a firm chooses to invest in countries with poorly paid labor. Poverty, however, is never a relative advantage for the country itself. Even the most successful exporters in the world economy find that labor costs are not a determining factor of export success. West Germany, whose share of total world exports (about 12%) exceeds even those of Japan, has one of the highest paid labor forces in the world.

The proposal is therefore to shift the emphasis away from two traditional development issues: the voluntary resource transfers to developing countries, and the management of the debt crisis. These two issues can be said to relate directly to the mismanagement of a very natural phenomenon: the excess demand for capital from growing nations.

In the last decade voluntary resource transfers (or aid) to developing countries have petered out to almost nothing, the US typically transferring less than 0.2% of its national product, in contrast with the United Nations' agreed target of 0.7%. This depressing trend is likely to continue. Relying on the improvement of such voluntary transfers is therefore unrealistic. Economic theory has also shown in recent years that the long term impact of such transfers in a market economy may harm the receiver by lowering its terms of trade, see e.g. Chichilnisky and Heal (1987). The continued practice of short term and floating rate indebtedness has also shown its weaknesses, and therefore should be avoided as much as possible.

Since it is clear that developing countries will continue to require additional capital for the foreseeable future, as predicted by economic theory, we propose

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that a possible solution is to advance the activity of domestic capital markets, and the appropriate regulation to assure their efficiency, in such a way as to capture the flow of capital currently allocated to international securities trading throughout the world. International securities markets have grown tremendously, an average of 36.6% yearly since 1979 in value terms. The international equity market alone, when measured by secondary turnover, reached US$ 1,212.6 billion in 1988. This trend is likely to continue. This source of supply for funds is well known by those with experience in global capital markets. For other sources, see e.g. *International Equity Flows* (1989 Edition), Howell and Cozzini (1989). While it is true that most of the international securities trading takes place between the industrial countries, a large and increasing part goes into the emerging markets of the developing world. Some US$ 7.5 billion is currently invested in country funds worldwide and this is expected to grow as emerging countries' share of the world economy increases. Emerging stock markets account for around 5 per cent of the world's capitalization and some 12 per cent of gross domestic product. There are currently 52 countries' funds listed internationally, with the Korea fund by far the largest. This fund was launched in 1984 in New York by First Boston and Shearson Lehman in conjunction with the International Finance Corporation, and currently it has a market capitalization of US$ 725 million. Country funds started to blossom amid the trend towards globalization of the early 1980's. The stock market crash of 1987 dealt a severe blow to their development but this year investors have again turned to the emerging markets of the world. The issues are well summarized in a recent article by D. Hargreaves, *Wall Street Journal* (November 1989): "Emerging countries usually welcome investment from country funds since they help break a pattern of being overly dependent on debt finance and can channel funds from expatriates back into the country. Country funds often stimulate development, and for those institutions with strong stomachs, they can also offer huge returns."

III. Exports: Leapfrogging beyond Traditional Relative Advantages

Another immediate reaction to the debt crisis is the emphasis on exports to raise foreign exchange. A succesful increase in export revenues can obviously alleviate the debt predicament in the short run. However, in today's world economy the issue is how to secure export markets for the developing countries' products.

This is a very real issue in view of the level of protectionism displayed by many of the industrial economies, and their current trade wars. Developing countries facing such a world market worry legitimately about their chances of success. In this paper I shall not be concerned with the short term problem of how to secure the markets needed for developing countries to increase their exports. As in the case of aid, or resource transfers, I consider that this issue

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begs the longer term question of how to raise foreign exchange without harming the longer term prospects of the economy.

Even if successful in the short term, certain export-led policies may lead to economic stagnation and crisis in the longer run. The trap to avoid is the continued specialization on the volatile commodity markets, and on labor intensive exports. Many examples are offered in the references (Chichilnisky and Heal (1987) and (1989)) about this phenomenon. It suffices here to mention that over the best years for oil market prices (1973–1982) middle income oil exporting nations grew *less* than middle income oil importers, see Chichilnisky and Heal (1989). The same reference shows that any list of the largest debtors in the world economy (by the size of debt service) includes five oil exporters among the top fifteen largest debtors. Not only did oil exports fail to promote faster growth; they also failed to improve the payments position of the exporting countries. Africa's ongoing plight is an indictment of the policy of specializing in resource exports. South and Central America present the same example for the specialization in labor intensive exports, along with raw materials. Neither has fared too well in their export plans.

The four Asian Tigers, Singapore, Korea, Taiwan and Hong Kong, on the other hand, displayed what we call "leapfrogging" behaviour in export markets. They present the clearer example of what it takes to succeed in export-oriented growth.

These four countries abandoned very quickly the labour intensive production in favour of capital and skill intensive exports. Examination of their export composition shows an extraordinarily fast shift away from traditional goods and labour intensive production particularly in the export sector. They had no illusions about pursuing their historically given relative advantages in labour intensive production.

This illusion comes from a misrepresentation of the classical Heckscher-Ohlin model of international trade, which simply and elegantly shows that trading is better than not trading, and that rather than not trading at all, countries are better off by selling each other what they can produce in better terms given their capital and labour endowments. This theory has been consistently checked for many years and the overwhelming conclusion is that it does not stand empirically, as we teach in our textbooks, see e.g. Krugman and Obsfelt (1987). In addition, the theory certainly does not say that exporting more labor intensive products is better than exporting less of them: it only reflects on exports versus no exports at all.

Newer and more realistic theories of international trade, focussed on North-South relations (Chichilnisky and Heal (1987)) have shown that exporting more labour intensive products can be strictly worse than exporting less. Specialization in such relative advantages could be a net loss for the country. The recommendation is to abandon traditional relative advantages on labor intensive and raw material markets, and leapfrog technologically to superior technologies and more rewarding market niches.

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Relative advantages are not given: they are created. An important aspect of current technologies is that comparative advantage can be manufactured by appropriate economic environments and policies. In many technology-based industries competitive advantage depends upon skill and experience (via the learning effect) and on scale of production (because of economies of scale). In a country with a large domestic market, or with access to a large regional market, and with a skilled population, the scale and experience needed to compete on world markets can both be gained at home if the right policies are pursued.

The expansion of local capital markets provides a natural demand for such new technologies. Telecommunications and computer links are the bare necessities in these markets. Communications are of the essence in trading; reporting and storing properly the information are equally important.

Leapfrogging toward advanced technologies may seem more difficult than slowly advancing through the industrialization ranks, but this is only at a first glance. Indeed, it is known that modernizing a traditional smoke-stack industrial economy is more difficult than adapting modern technologies from the outstart. The U.K.'s often perceived reluctance to new technologies is generally attributed to its role in leading the industrial revolution and its pool of traditional technology embodied in its existing capital stock.

For this reason, we recommend the developing countries abandon traditional relative advantages in export markets and that their governments should sponsor leapfrogging technical change. This recommendation is particularly suited to countries, such as Pakistan, which exhibit a distinguished scientific tradition and a historical commitment to cultural achievement.

IV. Summary and Conclusions

I have presented the main issues of development as the century turns, and contrasted these with the more traditional issues of the last ten or fifteen years. I have argued against further borrowing by the developing countries whenever possible, particularly short term, from private sources, and in floating rates. I argued that reliance on voluntary resource transfers from industrial countries is unrealistic, and that the proper regulation of local capital markets can be the best way to channel into the local economy the global capital flows needed for growth. Taking advantage of a historically new trend in global capital markets, the advent and rapid growth of international securities trading, developing countries can make such capital movements diffuse enough that they should not compromise national interests. The supply of funds which is not available for borrowing or for aid, is available and ready for investment in domestic securities.

Finally I have argued against the relative advantage trap: specializing in resource or labor intensive exports is risky and unrewarding in the long term. Technological leapfrogging, as pursued and achieved by the successful Asian

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Tigers, is the way to win export markets in the current economic climate. A country need not emphasize exports in order to develop. But if it does, then it must leapfrog. As difficult as the task may seem, it is easier for a country without a traditional industrial structure to achieve such new technologies directly without the added burden of slugging through the traditional industrial structures. A commitment to education and to technological development in the business sectors, particularly in the electronic and telecommunication areas required by the development of local capital markets, seems a precondition for success.

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SPOT RATES, FORWARD RATES, INTEREST RATE DIFFERENTIALS AND RATIONAL EXPECTATIONS

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This paper develops a model characterized by incorporating uncertainty and endogenizing expectations formations with rational expectations, and by integrating the exchange markets with the bank credit market. It is shown that an increase in sensitivity of arbitrage capital movement reduces the variability of the spot rate, but increases that of the forward rate through an unanticipated change in the balance of payments. An increase in the sensitivity of speculators to profits also reduces both variabilities. The variance of the interest rate differential is smaller under the floating system. Conditions for unbiasedness hypothesis and squared forward prediction error are also examined.

1. Introduction

The simultaneous determination of spot and forward exchange rates and the interrelationship between the two have attracted much attention in the field of international finance. The analytical methods of this subject have a salient feature in that they distinguish the participants of the foreign exchange markets as traders (or hedgers), covered interest arbitrageurs, and speculators, according to motivations or functions.[2] Their flow demands and supplies of spot and forward foreign exchanges have been assumed to clear each market continuously so as to simultaneously determine the spot and the forward exchange rates [see, e.g., Sprao (1959), Tsiang (1959), Grubel (1966), McCormick (1977), and Argy and Clements (1982)]. Analyses have traditionally been carried out in models developed in this framework, with deterministic assumptions of no uncertainty, partial equilibrium, and exogenous interest rates and expectations.

More recently, two different approaches to the study of spot and forward rates have been developed. On the one hand, the assumption of no uncertainty has been relaxed to focus on the stochastic properties of forward and spot rates. This approach has been inspired by and associated with rational expectations and the efficient market hypothesis. In particular, this approach is mainly concerned with (a) the unbiasedness hypothesis, i.e., whether or not the forward

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[2]The transactions of demand for and supply of foreign exchanges are classified according to the following motivations (or functions): (i) settlement, (ii) speculation, (iii) hedging, (iv) the interest arbitrage, and (v) intervention by foreign exchange authorities. For classification by function rather than by person, see Sohmen (1966,1969), and Tsiang (1959). Akiba (1987), Argy and Clements (1982) and Stein (1980) also follow this line of classification.

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rate is equal to the expected future spot rate, and (b) how good a predictor the forward rate is of the future spot rate [see, e.g., Mussa (1984), Levich (1985), and Hodrick (1987)]. However, this approach is not free from a criticism, contending that the analyses have been partial equilibrium in nature [see Stein (1980), and Driskill and McCafferty (1982)]. [3]

On the other hand, another approach has tried to incorporate the domestic asset market or the market for bank credit into the simultaneous relationships between the spot and the forward exchange rates.[4] Thus, the model consists of at least three markets, i.e., the spot foreign exchange, the forward exchange, and the domestic asset market or the market for bank credit, and they are linked by the arbitrage behavior of market participants. This approach in fact alleviates the restrictive nature of partial equilibrium assumption, and endogenizes the interest rate.[5] However, this approach is criticized on the grounds that expectations are given exogenously [see, e.g., Kenen (1985) and Levin (1987)].

The purpose of this paper is to fill the gap between the two approaches by explicitly incorporating uncertainty and endogenizing expectations with rational expectations, and by integrating the foreign exchange markets with the domestic market for bank credit. By introducing these two elements into the traditional flow approach for simultaneous determination of spot and forward exchange rates, the resultant integrated model enables us to develop explicit expressions for the discrete random processes generating spot and forward rates and the interest rate through time. Since the interest rate is also regarded as stochastic through covered interest arbitrage, we are thus able to derive comparative statics results about the relationship between the stochastic properties of the spot rate, forward rate, and the interest rate, and the underlying parameters in the model. We are also able to investigate those concerns about the spot and forward rate properties which have been the focal point of the efficient market hypothesis. In particular, we can derive the conditions under which the forward rate is an unbiased predictor of the future spot rate. We can also examine other properties of the difference between the actual future spot and the current forward rates.

We are also able to address those concerns about the stochastic properties of the interest rate. In particular, the model is constructed to show how an exchange rate regime affects the interest rate and its variability. In addition, our model is also constructed to investigate those concerns about the comparative

[3] Driskill and McCafferty's model is criticized by an ad hoc assumption of a perfectly elastic arbitrage schedule. This assumption is in effect equivalent to an assumption that the speed of adjustment of capital mobility of an arbitrage fund is infinite so as to maintain the covered interest parity condition.

[4] Levin (1987) considers the effects of interaction between the domestic asset market and forward exchanage markets. However, his model is reduced to a single equation model to determine the forward rate, once the rate of interest is eliminated from the two-equation model (1) and (4)

[5] Because most of these models assumed a small country, the interest rate differentials are also endogenized, given the foreign interest rate.

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statics results of spot and forward exchange rate variability induced by a change in several important parameters. A key result is that, while the high responsiveness of speculators reduces spot rate variability due to balance of payments shocks[6] the high mobility of international capital increases it through variability of the balance of payments. Another result, which highlights the difference in the specification of our model of foreign exchange market and the bank credit market is that the variability of the forward rate is always reduced by the high responsiveness of speculators or the degree of capital mobility, and the variability of the interest rate absorbs the effect of change in either parameter.

2. The Model

This section develops a model we use to investigate the relationships between the spot rate, the forward rate, and the interest rate, and various comparative statics about their variability. Three points should be worth mentioning about the model. First, it is, like all models, a simplification of economic reality. Although the model views the foreign exchange markets in a partial equilibrium framework, it nonetheless captures certain features of the financial system of a modern economy.

The second point is that the market for bank credit is explicitly incorporated in the model. Thus, the model is more elaborate than most other models concerned with spot and forward markets mentioned in the last section.

The third point is that the model deals with flow equilibria rather than the stock equilibria found in asset market models. However, as mentioned in Driskill and McCafferty (1982), the model is not inconsistent with the asset market model [see also Stein (1980) and Levin (1987)].

Although the model ignores another important aspect of portfolio selection under intertemporal consideration,[7] the variability of spot and forward rates as well as that of the rate of interest is examined. Because the model has three markets rather than the two in most other models dealing with spot and forward rates, the domestic rate of interest is determined endogenously.

2.1 *Structure*

Consider an open economy with three markets which are linked by covered interest arbitrage. Suppose an exogenous increase in the foreign interest rate, leading to a shift of borrowing from foreign to domestic lenders. This shift appears as an increase in demand in the market for domestic credit, and it thus tends to raise the domestic interest rate. It also appears as a decrease in demand in the market for forward foreign exchanges, because domestic firms that borrow less from foreign

[6] This is the same qualitative conclusion as that obtained in Driskill and McCafferty (1982) from a model with no bank credit market.

[7] For the efficiency and the unbiasedness hypothesis in an intertemporal model, see Frenkel and Razin (1980), in which an individual is assumed to maximize expected utility.

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lenders face smaller repayments to cover, and it thus tends to reduce the forward premium on the foreign currency. Finally it appears as a decrease in supply in the market for spot foreign exchanges, because the international capital inflow falls, and it thus tends to raise the spot price of the foreign currency.

In what follows, we first present the market for bank credit and the equilibrium condition for it. Then, a traditional simplified spot and the forward foreign exchange markets and the equilibrium conditions for each of them are assumed. It is further assumed that the foreign exchange is competitive in the following sense: (i) there are no transaction costs. (ii) speculation is competitive, and (iii) there are no restrictions on the use of forward market.

In addition, we adopt a traditional assumption that the foreign exchange market consists of three different participants. They are classified as pure arbitrageurs, pure speculators, and hedgers (or traders), according to motivations or functions.[8] The first, pure arbitrageurs, desire to attain the highest possible net return from the use of available funds in the foreign exchange market without taking any exchange risk. Arbitrage facilitates the low of one price to hold in all exchange markets. Pure speculators also seek the highest possible profits by aggressively assuming exchange risk with reference to their own expectations as to the future courses of exchange rates. The last, hedgers (or traders), do not assume, or aggressively eliminate a speculative position. In other words, they operate in the foreign exchange market to avoid any risk by covering their transactions in the spot market. [9]

For simplicity's sake, it is assumed that there is only one forward market, and that all forward contracts have a maturity of one period. Price levels and real income are assumed constant. Thus, the structural model consists of specifications of demand and supply of the three markets and a statement of market- clearing conditions in each market.

2.1.1 *The Market for Bank Credit*

The flow supply function of credit from domestic banks is formally stated as:

$$L_t^s = L^s(R_t, i_t) \tag{1}$$

where t is the time period, i is the domestic interest rate, and R is the increase in banks' reserves defined as:

$$R_t = E_t + B_t \tag{2}$$

[8] Criticisms of this artificial trichotomy of market participants are well known (see, e.g., Kenen (1985)).

[9] This is an oversimplified classification according to motivations or functions. In reality, of course, it is possible that both hedgers and arbitrageurs speculate while at the same time hedgers can engage in covering transactions in the forward market. These cases can be easily handled in the present model which closely resembles those of Tsiang (1959) and Sohmen (1966, 1969).

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E is the increase in domestic assets held by the central bank and B is the increase in its foreign assets (and equals the balance of payments surplus measured in the domestic currency). It is assumed that $L_1^s > 0$ and $L_2^s > 0$. [10]

The flow demand for bank credit is defined as the difference between the total flow demand for credit by domestic firms and net foreign borrowing by those firms:

$$L_t^d = L_d^d(i_t) - L_f^d(x_t) \tag{3}$$

where x is the covered interest differential:

$$x = i^* - i + p \tag{4}$$

Here, i* is the foreign interest rate and p is the forward premium on the foreign currency:

$$p \equiv (F - S)/S \tag{5}$$

where F is the forward exchange rate and S is the spot exchange rate, both expressed as units of the home currency per unit of the foreign currency. It is assumed that $L_{d1}^d < 0$ and $L_{f1}^d < 0$.

The market for bank credit is assumed to clear at all times:

$$L_t^s = L_t^d \tag{6}$$

2.1.2 *The Spot Market*

The flow demand function for spot foreign exchanges is formally represented by:

$$D_{at}^s = D_a^s(x_t) \tag{7}$$

with $D_{a1}^s > 0$.

It is assumed that arbitrageurs demand the spot foreign exchanges as long as covered interest arbitrage turns in favour of foreign investment. [11] Here we assume that the demand for spot foreign exchanges takes the form of loans from abroad by domestic firms, so that they are assumed to act as arbitrageurs in this respect. Thus, D_a^s is identically equal to $-L_f^d$, because $D_{a1}^s > 0$ but $L_{f1}^d < 0$:

$$D_{at}^s = -L_f^d(X_t) \tag{7'}$$

[10] In the following z_i denotes the (partial) derivative of z with respect to the i-th variable.

[11] It is implicitly assumed that there is no constraint (i.e., shortage of available funds). As long as the covered interest arbitrage conditions holds, there exists a simultaneous forward contract of the same amount (disergarding the small accrual of interest) in the opposite direction.

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There is another demand factor in the spot market (actually it is the supply of spot exchanges in the following sense); in order to realize speculative profits (or losses) an equal amount of spot foreign exchange bought as forward foreign exchange in the previous period[12] will be sold in the spot market by speculators.[13] Thus:

$$-D^s_{st-1} = -D^s_s[(S^e - F)_{t-1}] \quad (8)$$

with $D^s_{s1} > 0$. S^e_{t-1} is the spot exchange rate expected at the previous period.

The forward supply function of spot foreign exchange is given by:

$$S^s_{ht} = S^s_h(B_t, S_t) \quad (9)$$

with $S^s_{h1} > 0$ and $S^s_{h2} > 0$. B represents the current account plus exogenous capital inflows that do not depend on the exchange rate. Equation (9) asserts that if B is positive (i.e., the external balances are in surplus), the supply will increase, and vice versa.[14] It also signifies that when the spot rate depreciates ($dS_t > 0$), the foreign exchange authorities take up a leaning-against-the-wind policy, and hence increase supply of spot foreign exchanges ($dS^s_h > 0$). [15]

Hence, the spot market equilibrium condition is:

$$D^s_{at} - D^s_{st-1} = S^s_{ht} \quad (10)$$

2.1.3 *The Forward Market*

The flow demand for forward foreign exchanges is represented by:

$$D^f_{st} = D^f_s[(S^e - F)_t] \quad (11)$$

with $D^f_{st} > 0$. This signifies that the pure speculators will be a buyer or a seller of forward foreign exchanges according to whether his expected rate is higher or lower than the current forward rate.[16]

[12] In other words, speculators bought forward foreign exchanges in the previous period based on their expectations that the expected future (i.e., future in the previous period, but "current" as time elapsed) spot rate was greater than the forward rate.

[13] Stein's equation (1) ((1980), p. 569) is ambiguous in this respect. Since speculators in the spot market can be regarded as acting as both interest arbitrageurs and forward market speculators, all speculations in the foreign exchange market are carried on in the forward market. However, as time elapses, speculators must clear their forward contracts (against arbitrageurs) at the delivery dates. This transaction results in supply of spot foreign exchanges. For more details, see, e.g., Tsiang (1959), pp. 91–2.

[14] If the private sector is not allowed to hold any foreign exchanges, S^s_{h1} is unity. In general, it lies in between zero and unity.

[15] Thus, $S_{h2s} > 0$ signifies the government intervention in the spot foreign exchange market. We assume that the government does not intervene in the forward foreign exchange market. It is also assumed that the intervention is completely exogenous, and does not affect the flow increase in the banks' reserves, R.

[16] See Stein (1980), pp. 569–70 and Tsiang (1959), p. 82. Obviously Stein's "hedgers" mean "arbitrageurs" (or traders) in our present context.

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The flow supply of forward foreign exchanges reflects the opposite transaction by arbitrageurs in the spot market. In other words, the net flow supply of forward foreign exchanges by arbitrageurs is always matched by their demand for spot foreign exchange, [17] disregarding the small accrual of interest. Hence:

$$S^f_{at} = S^f_a(X_t) \tag{12}$$

with $S^f_{a1} > 0$. Equation (12) means that the demand for spot foreign exchanges by arbitrageurs is identified with the supply of forward foreign exchanges by speculators when arbitrageurs take forward covers. However, we have assumed that the demand for spot foreign exchanges takes the form of loans from abroad by domestic firms. Thus, $S^f_a(X_t)$ is identically equal to $-L^d_f$ (disregarding the small accrual of interest), because $S^f_{a1} > 0$ but $L^d_{f1} < 0$:

$$S^f_{st} = -L^d_f(X_t) \tag{12'}$$

The forward market clears all the time without official intervention:

$$D^f_{st} = S^f_{at} \tag{13}$$

2.2 *Derivation of Linear Simultaneous Equations System and Reduced Forms*

To simplify notation, we introduce r which defines the interest differential, $i - i^*$. Also in order to facilitate explicit solutions for reduced forms for endogenous variables, three equilibrium conditions (6), (10), and (13) are first modified with linear approximation. For ease of exposition, all constants are suppressed in the rest of this paper. The resultant equations are compactly summarized in the following equation (14), given the expected spot rates.

$$\begin{pmatrix} -(a+d) & a & -a \\ a & -(a+b) & a \\ a & -a & a+n \end{pmatrix} \begin{pmatrix} S_t \\ F_t \\ r_t \end{pmatrix} = \begin{pmatrix} -b & 0 & c & 0 & b \\ 0 & 0 & 0 & -b & 0 \\ 0 & -g & -g & 0 & 0 \end{pmatrix} \begin{pmatrix} F_{t-1} \\ E_t \\ B_t \\ S^e_{t+1} \\ S^e_t \end{pmatrix} \tag{14}$$

where $a \equiv -L^d_{f1} = \partial D^s_{at}/\partial X_t = \partial S^f_{at}/\partial X_t > 0$, $b \equiv D^s_{s1} = D^f_{s1} > 0$,

$c \equiv S^s_{h1} > 0\ (1 \geq c \geq 0), d \equiv S^s_{h2} > 0$, $g \equiv L^s_1 > 0$, and $n \equiv L^s_2 - L^d_{d1} > 0$.

The first row in this system relates to the spot market, the second to the forward market, and the third to the credit market. 'a' is the arbitrage effect (Kenen (1985)), describing the increase in the foreign borrowing caused by a decrease in the covered interest differential. It is equally termed as the degree

[17] The expected future spot rate will be endogenized later.

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of capital mobility (Argy and Clements (1982)), so that when 'a' approaches to infinity, the interest rate parity is assumed to hold. As remarked by Kenen ((1985), p.656, $a \rightarrow +\infty$ is assumed in many models (e.g., Driskill and McCafferty (1982)), so that the covered interest parity holds at all times ($x_t = 0$).[18] A case of the perfectly elastic covered interest arbitrage schedule will be discussed later again. 'b' is the speculative effect, measuring the sensitivity of speculators' response to any assumed difference between the expected spot rate and the forward rate. As discussed in some detail by Tsiang (1959), 'b' is relatively large, while 'a' is relatively small, especially in the short-run. 'c' is the hoarding effect, representing a proportion of foreign exchanges that traders hoard up ($1 \geq c \geq 0$). If we assume that traders do not take an open position, c could be set to unity. 'd' is the investment effect, representing the leaning-against-the-wind policy of the foreign exchange authorities. It is assumed that government intervention in the spot market is exogenous, and feasible without affecting the flow increase in banks' reserve, R. For example, $d = 0$ represents a case where there is no government intervention; at the other extreme, if $d \rightarrow +\infty$, the exchange rate would be fixed by the monetary (foreign exchange) authorities. 'g' is the reserve effect, describing an increase in the supply of bank credit caused by a faster increase in the banks' reserves. 'n' is the credit supply effect, describing an increase in the excess supply of bank credit caused by an increase in the domestic rate of interest.

Three endogenous variables, S_t, F_t, and r_t, can be solved to derive reduced forms, given the expected future spot rates and exogenous variables, E_t and B_t.

$$S_t = \gamma_1 F_{t-1} + \gamma_2 S^e_{t,t+1} + \gamma_3 S^e_{t-1,t} + \gamma_4 E_t + \gamma_5 B_t \tag{15}$$

$$F_t = \delta_1 F_{t-1} + \delta_2 S^e_{t,t+1} + \delta_3 S^e_{t-1,t} + \delta_4 E_t + \delta_5 B_t \tag{16}$$

$$r_t = \theta_1 F_{t-1} + \theta_2 S^e_{t,t+1} + \theta_3 S^e_{t-1,t} + \theta_4 E_t + \theta_5 B_t \tag{17}$$

where

$\gamma_1 = b[(a+b)n + ab]/\Delta$, $\gamma_2 = abn/\Delta$, $\gamma_3 = -\gamma_1$, $\gamma_4 = [ab(g-c) - cn(a+b)]/\Delta$, $\gamma_5 = abg/\Delta$, $\delta_1 = \gamma_2$, $\delta_2 = b[(a+d)n + ad]/\Delta$, $\delta_3 = -\delta_1$, $\delta_4 = -a(cn+dg)/\Delta$, $\delta_5 = -adg/\Delta$, $\theta_1 = -ab^2/\Delta$, $\theta_2 = abd/\Delta$, $\theta_3 = -\theta_1$, $\theta_4 = [abc - (ab+ad+bd)g]/\Delta$, $\theta_5 = -(ab+ad+bd)g/\Delta$, and $\Delta \equiv (ab+bd+ad)n + abd > 0$.

In order to avoid ambiguity, we clarify expectations by $S^e_{i,j}$, describing the spot exchange rate to prevail at time j, expected at time i.

[18] It has been argued that x is close to zero in Eurocurrency markets, for reasons described by Isard (1987). It can differ markedly from zero in other than Eurocurrency markets, because of restrictions on capital movements (political risk) or risk aversion on the part of arbitrageurs. Exchange risk does not attach to covered interest parity by definition of 'cover', but default risk attaches to a forward contract, and may also attach to the debt instruments involved (see, e.g., Eaton and Turonvsky (1983)).

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2.3 *Rational Expectations Solutions*

We determine the equilibrium values of S_t, F_t, and r_t as a function of the time paths of exogenous and predetermined variables, and expectations in equations (15)–(17). To close the model we impose rationality so that the expectations appearing in the system of equations (15)–(17) are linear least squares forecasts conditional on information at the time period of forming expectations. Thus, all that is necessary to solve the system is knowledge of the stochastic processes generating future values of both increases in E (domestic assets held by the central bank) and B (the balance of payments surplus). We will assume particularly simple processes in which both E and B fluctuate randomly around some mean values:

$$B_t = B + u_t \tag{18}$$

$$E_t = E + w_t \tag{19}$$

where u_t and w_t are zero-mean, serially uncorrelated and independently distributed random variables with finite variances σu^2 and σw^2, respectively. For simplicity's sake, B and E are set equal to zero, so that both the central bank's assets and the balance of payments remain at their initial values.

To solve the system, we use a familiar method of underermined coefficients, with the details relegated to the Appendix section. Briefly speaking, S, F, and r can be written as time invariant functions with respect to the underlying state variables[19]. The system of equations (15)–(17) together with (18) and (19) thus yields the cross equation restrictions implied by rationality. The explicit solution for the spot rate is:

$$S_t = \Pi_1 F_{t-1} + \Pi_2 S_{t-1} + \Pi_3 u_t + \Pi_4 w_t \tag{20}$$

with $\Pi_1 = -\gamma_1/(\gamma_2 - \gamma_1)$, $\Pi_2 = \delta_1/(\gamma_2 - \gamma_1)$, $\Pi_3 = -\delta_4 - (\gamma 4/\gamma_1)$ and $\Pi_4 = -\delta_5 - (\gamma_5/\gamma_1)$.[20] It can easily be confirmed that $\Pi_1 > 1$ and $\Pi_2 < 0$. The latter, however, must be greater than minus unity for equation (20) to be stable. One sufficient, but not necessary, condition is $b \geq a$, and the plausibility of this condition was mentioned in the last section 2.2. Thus, equation (20) is stable, Π_3 is either positive or negative (but positive if $c > g$), and $\Pi_4 < 0$ are also easy to verify.

[19]The reason for it lies in the fact that the structure of the model is not expected to change over time.

[20]Here it can be observed that $\Pi_1 + \Pi_2 = 1$ because $\delta_1 = \gamma_2$. In other words, a rationally expected spot exchange rate is a weighted average of S_{t-1} and F_{t-1}. The effect of the previous forward rate is a possible source of excessive volatility of the spot rate because of $\Pi_1 > 1$. However, the effect of the previous spot rate tends to offset such volatility. This implication will again be discussed later.

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Substituting the expected value of S_t in equation (20) and its updated value for one period into equation (16), and rearranging terms yields the explicit solution of rationally expected F_t:

$$F_t = \Gamma_1 F_{t-1} + \Gamma_2 S_{t-1} + \Gamma_3 u_t + \Gamma_4 w_t \tag{21}$$

where $\Gamma_1 = \Pi_1 + (1/\gamma_2)$, $\Gamma_2 = (\delta_2/\delta_1)\Pi_2 - 1$, $\Gamma_3 = (\delta_4 + \delta_2\Pi_2\Pi_3)/(1 - \delta_2\Pi_1)$ and $\Gamma_4 = (\delta_5 + \delta_2\Pi_2\Pi_4)/(1 - \delta_2\Pi_1)$. It can also be observed easily that:

$$\Gamma_1 > 1, \quad \Gamma_2 < -1, \quad \Gamma_3 > 0, \text{ but } \Gamma_4 \gtrless 0$$ [21]

Using the same procedure, and eliminating $S^e_{t,t-1}$ and $S^e_{t-1,t}$ from equation (17) by using equation (20), we obtain the explicit solution of rationally expected r_t:

$$r_t = \Omega_1 F_{t-1} + \Omega_2 S_{t-1} + \Omega_3 u_t + \Omega_4 w_t \tag{22}$$

where $\Omega_1 = (1 - \Pi_1)\theta_1 + (\Pi_2 + \lambda_1)\theta_2\Pi_1$, $\Omega_2 = \Pi_2(\theta_2\Pi_2 - \theta_1) + \theta_2\Pi_1\lambda_2$, $\Omega_3 = \theta_4 + \theta_2(\Pi_2\Pi_3 + \Pi_1\lambda_3)$, $\Omega_4 = \theta_5 + \theta_2(\Pi_2\Pi_4 + \Pi_1\lambda_4)$, and $\lambda_1 = 1/\Gamma_1$, $\lambda_2 = -\Gamma_2/\Gamma_1$, $\lambda_3 = \Gamma_3/\Gamma_1$, and $\lambda_4 = \Gamma_4/\Gamma_1$.

It can also be confirmed that $\Omega_1 > 0$, $\Omega_2 > 0$ if $b > d$, and $\Omega_3 > 0$ for our assumption of $b > a$. But the sign of Ω_4 is ambiguous.

2.4 *Spot and Forward Exchange Rates: Comparative Statics*

The rational expectations solutions for the spot and the forward exchange rates presented in the last section can be expressed as linear functions of all current and past or future disturbances. First, successive substitution of equation (20) yields:

$$S_t = \Pi_2^n S_{t-n} + \Pi_1 \sum_{i=0}^{n-1} \Pi_2^i F_{t-1\,i} + \Pi_3 \sum_{i=0}^{n-1} \Pi_2^i u_{t-i} + \Pi_4 \sum_{i=0}^{n-1} \Pi_2^i w_{t-i} \tag{23}$$

Then, squaring, taking expectations and a limit of $n \to \infty$ yields the asymptotic variance of the spot exchange rate:

$$\sigma_s^2 = \left(\frac{\Pi_3^2}{1 - \Pi_2^2}\right)\sigma_u^2 + \left(\frac{\Pi_4^2}{1 - \Pi_2^2}\right)\sigma_w^2 \tag{24}$$

Thus, the variance of the spot exchange rate is a linear function of the variances of changes in the balance of payments and domestic assets held by the central bank. An increase in either of these structural variances increases the variances of the spot exchange rate.

Utilizing equation (24) and the definitions of Π_i, we can examine the comparative static characteristics of the spot rate variance. The signs of effects of changes in parameters, a, b, c, d, g, and n, are shown in Table 1.[22]

[21] $\lambda_1 > 1$ does not necessarily mean that rationally expected forward rate is unstable. The stability will be discussed later.

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TABLE 1

SIGNS OF EFFECTS OF CHANGE IN VARIOUS PARAMETERS ON THE SPOT EXCHANGE RATE VARIANCE

Parameters	Signs of change in coefficient of		
	σ_{ll}^2	σ_w^2	σ_s^2
a	–	0	–
b	–	0	–
c	–	0	–
d	+	+	+
g	–	0	–
n	+	0	+

Remarks: a change in a parameter has a positive (+), a negative (–), and no (0) effect on σ_l^2.

Thus, an increase in '*a*', the arbitrage effect which measures the degree of international capital mobility, has a negative effect on the spot rate fluctuation through a decrease in the balance of payments variance. This implies, ceteris paribus, that swifter the speed of arbitrage funds when the balance of payments is imbalance, the smaller is the fluctuation in the spot rate. The reason for this lies in the simple fact that the portion of adjustment needed by changes in the price (the spot rate) to bring about international movements of capital is smaller.

An increase in '*b*', the speculative effect, also has a negative effect on the spot rate fluctuation through a decrease in the balance of payments variance. This implies that the fluctuation of the spot rate will be smaller if the sensitivity of speculators is higher when there are opportunities for profits by taking speculative position in the forward market. The spot rate is affected, because the speculative supply of forward foreign exchanges is provided by arbitrageurs taking forward covers when they shift arbitrage funds (i.e., borrowing from abroad in our model). When the sensitivity of speculators is low, the extent of price adjustment (i.e., a change in S or F) is large to equilibrate all three markets, and vice versa. Thus, σ_s^2 is smaller when 'b' tends to be large, and, in fact, we can easily confirm that σ_s^2 does not change in the extreme case of $b \rightarrow \infty$.

A change in '*c*', the hoarding effect, also affects σ_s^2 through a change in the balance of payments variance. For example, an increase in '*c*' means a decrease in the excess supply of spot exchanges, and therefore mitigates fluctuation in the spot exchange rate.

A change in '*d*', the intervention effect, is the only disturbance that also affects changes in domestic assets held by the central bank. For example, an increase in '*d*' means an increase in the excess supply of spot foreign exchanges that must be matched by an equal increase in the excess demand. An increase in fluctuation of the spot rate is immediate. In addition, we should note that the increase has two components; one is the excess demand for loans from abroad

[22]These effects are determined at their initial values of zero.

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$L_f^d(x_t)$, and the other is that from the domestic market, $L_d^d(i_t)$. As $L_t^d = L_d^d(i_t) - L_f^d(x_t)$ increases, both i_t and x_t change. To fill the increase in L_t^d, the supply L_t^s must also increase for a new equilibrium of the loan market. Thus, R_t and, hence, E_t will also change.

Changes in two parameters, 'g', the reserve effect, and 'n', the credit supply effect, cause a change in the variance of the spot rate, but the direction of change is opposite. Also, their effects are realized through a change in the balance of payments variance. For example, an increase in 'g' means an increase in the excess supply of loans which must be matched by an equal increase in the excess demand. The resultant decrease in borrowing from abroad means a decrease in the excess demand for the spot foreign exchanges. Thus, compared with a case of smaller 'g' (implies larger borrowing from abroad, and, hence, a larger excess demand for the spot foreign exchanges), the variance of the spot rate is smaller. On the other hand, an increase in 'n' brought about by an exogenous increase in the domestic interest rate will also increase borrowing from abroad. The latter means an increase in the excess demand for the spot foreign exchanges. Thus, compared with the case of a smaller 'n' (implying a smaller borrowing from abroad, and, hence a smaller excess demand for the spot foreign exchanges), the variance of the spot rate is larger.

The variance of the forward exchange rate is determined with a slightly different method. It should be mentioned that this difference is closely related to the forward-looking characteristic of the forward rate. Note that the Γ_1 in equation (21) is positive, but greater than unity. Therefore, the successive substitution method applied to solve equation (20) to obtain equation (23) cannot be used for equation (21). However, as suggested by Sargent ((1979), p. 176), we can also apply the "forward inverse" method to obtain a general solution. Thus, updating equation (21) one period yields:

$$F_t = \frac{1}{\Gamma_1}F_{t+1} - \frac{\Gamma_2}{\Gamma_1}S_t - \frac{\Gamma_3}{\Gamma_1}u_{t+1} - \frac{\Gamma_4}{\Gamma_1}w_{t+1} \qquad (21')$$

Then, substituting the updated equation (21′) successively (the "forward inverse"), we can solve (21′), because now $1 > 1/\Gamma_1 > 0$. the general solution is:

$$F_t = \lambda_1^n F_{t+n} + \lambda_2 \sum_{i=0}^{n-1} \lambda_1^i S_{t+1} - \lambda_3 \sum_{i=0}^{n-1} \lambda_1^i u_{t+1+i} - \lambda_4 \sum_{i=0}^{n-1} \lambda_1^i w_{t+1+i} \qquad (25)$$

where, after a slight arrangement, $\lambda_1 = 1/\Gamma_1 = (1 - \delta_2\Pi_1)/(\delta_1 + \delta_2\Pi_1)\Pi_2 = \gamma_2/(1 + \gamma_2\Pi_1)$, $\lambda_2 = -\Gamma_2/\Gamma_1/ = \delta_2\Pi_1/(1 + \delta_1\Pi_1)$, $\lambda_3 = \Gamma_3/\Gamma_1 = (\delta_4 + \delta_2\Pi_2\Pi_3)/(\delta_1 + \delta_2\Pi_1)\Pi_2$, and $\lambda_4 = (\delta_5 + \delta_2\Pi_2\Pi_4)/(\delta_1 + \delta_2\Pi_1)\Pi_2$. Thus, the general solution of F_t is a linear function of all current and future spot rates, and future disturbances. This forward looking characteristic of the forward rate is in keen contrast with the backward looking characteristic of the spot rate, equation (23).

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Since the forward rate is defined as the rate at which foreign exchanges can be bought or sold today for delivery at some future time, the general solution of a rationally expected forward rate with forward looking characteristic is more meaningful from an economic viewpoint.

Then, squaring, taking expectations and a limit of $n \rightarrow \infty$ yields the asymptotic variance of the forward exchange rate:

$$\sigma_F^2 = \left(\frac{\lambda_3^2}{1-\lambda_1^2}\right)\sigma_u^2 + \left(\frac{\lambda_4^2}{1-\lambda_1^2}\right)\sigma_w^2 \tag{26}$$

As with the spot rate variance, the forward rate variance increases with an increase in either of the coefficients of structural variances, σ_u^2 and σ_w^2.. Utilizing equation (26) and the definition of λ_i, we can also examine the comparative static characteristics of the forward rate variance. The signs of effects of a change in parameters are reported in Table 2. [23]

Thus, contrary to the case of σ_s^2, an increase in 'a', the arbitrage effect (measuring the degree of international capital mobility) has a positive effect on the forward rate fluctuation through an increase in the balance of payments variance. This implies that international capital for forward covers also moves fast as a result of faster mobility, thereby causing, ceteris paribus, larger fluctuation in the forward rate.

TABLE 2
SIGNS OF EFFECTS OF CHANGE IN VARIOUS PARAMETERS ON THE FORWARD EXCHANGE RATE VARIANCE

Parameters	Signs of change in coefficient of		
	σ_u^2	σ_w^2	σ_F^2
a	+	0	+
b	–	–	–
c	+	0	+
d	**	*	*
g	+	0	+
n	+	–	?

Remarks: a change in a parameter has a positive (+), a negative (–), and no (0) effect on σ_i^2.
** = negative if either a=0 or g=0
* = negative if g=0
? = ambiguous in sign

An increase in 'b', the speculative effect, will lower the variance of the forward rate through a decrease in the coefficient of the balance of payments

[23] These effects are also evaluated at their initial values of zero.

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variance, as with the case of the spot rate. However, its increase also has a negative effect on σ_F^2 through a decrease in the coefficient of σ_w^2. As the sensitivity of speculators increases, a smaller deviation of the forward rate from the expected future spot rate is sufficient to induce a given amount of the excess demand for the forward foreign exchanges. Here we should recall that the excess demand must be matched with the excess supply by arbitrageurs, which, in turn, is equal to the excess demand for loans in our model. Thus, the excess supply of loans must, ceteris paribus, be increased through a change in E, i.e., a change in the coefficient of σ_w^2. However, because of an increase in 'b', the necessary change in the forward rate to have a sufficient deviation from the expected future spot rate is smaller, and hence the variance of σ_F^2 is smaller.

The opposite effect on σ_F^2 is observed for changes in 'c' or 'g' to the case of σ_s^2. Both increases have poitive effects on the forward rate variance. For example, an increase in 'c', the hoarding effect, implies a decrease in the supply of spot foreign exchanges, causing excess demand. As a result, borrowing from abroad increases, and in our model it implies excess demand for forward covers. Thus, an increase in fluctuation of the forward rate is associated with an increase in 'c'. Similarly an increase in 'g', the reserve effect, means an increase in the domestic supply of loans which must be equal to the demand at equilibrium. Thus, for a given domestic demand, borrowing from abroad must fall, and this implies that the demand for the spot foreign exchanges by arbitrageurs decreases. As a result, the excess supply of forward foreign exchanges for covering increases. Thus, an increase in fluctuation of the forward rate is associated with an increase in 'g'.

However, the signs of changes in the effect of 'd' and 'n' are ambiguous. An increase in 'd', the intervention effect, means an exogenous increase in the supply of spot foreign exchanges by the monetary authorities. In other words, there is possibly a potential demand for it in the initial situation. This supply of the spot exchanges partly decreases borrowing from abroad, and hence the demand for forward exchanges for covering also decreases. Therefore, there is a good reason to believe that σ_F^2 decreases. However, in equilibrium, the supply of and the demand for spot exchanges must be equal, and this can be possible in our model through either borrowing from abroad or an exogenous increase in loans through change in E. The latter will lead to a decrease in σ_F^2 through a change in the coefficient of σ_w^2, because the change in loans by a change in E partly offsets an initial excess demand for spot exchanges. Thus, if g=0, the effect through a change in the coefficient of σ_w^2 is negative. The effect through a change in the coefficient of σ_u^2 is negative if n=0, because there is no capital movement in this case, and therefore, a decrease in the balance of payments also tends to be smaller after a fall in S, compared with the case where $a > 0$.

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An increase in 'n', the credit supply effect, however, has an ambiguous effect on σ_F^2 through conflicting effects between changes in the coefficients of σ_v^2 and σ_w^2. An excess supply of domestic loan emerges as a result of an increase in 'n', and thus the demand for borrowing from abroad decreases. In other words, the demand for spot foreign exchanges in our model falls, implying an equal decrease in the forward foreign exchanges (disregarding a small accrual of interest) by arbitrageurs. Thus, fluctuation in the forward rate would be greater through this channel of change in the forward exchanges by arbitrageurs. On the other hand, the initial increase in excess supply of loans must be equal to its demand in equilibrium, and this can be possible through a change in E. Thus, the increase in σ_F^2 would be mitigated through a decrease in E, implying that σ_w^2 has a negative effect on σ_F^2 when 'n' changes.

2.5 *Interest Rate Differential: Comparative Statics*

From equation (22) we can also derive the variance of r_t, the interest rate differential:

$$\sigma_r^2 = \Omega_3^2\sigma_u^2 + \Omega_4^2\sigma_w^2 \tag{27}$$

Both Ω_3 and Ω_4 have complex expressions with the underlying parameters of the system. Thus, we discuss only special cases. In particular, we examine if the variance of the domestic interest rate is affected by changes in some exogenous parameters and by a change in the exchange rate regime.

First, it can be shown that both Ω_3 and Ω_4 reduce to $(-g/n)$ when a = 0, i.e., there is no international capital mobility for interest arbitrage. Thus, the variance of the interest rate differential is smaller when g is smaller and/or n is larger. Secondly, it can also be shown that zero speculation ($b = 0$) means both Ω_3 and Ω_4 being equal to $(-g/n)$. Thus, σ_r^2 is smaller for a small value of g and/or a larger value of n. The result is understandable, because $\theta_2 = \theta_3(\theta_1) = 0$ in equation (17), so that the effects of the foreign exchange markets will not be reflected in the interest differential.

Thirdly, the effect of change in various parameters in a different exchange rate regime will be examined by changing the value of 'd'. When $d \to \infty$, the system is approximately a fixed exchange rate regime. Under this situation, it can be confirmed that $\Omega_3 = \Omega_4 = (-g/n)$ when $a \to 0$. A more interesting case is the effect of 'b' (speculation) under a fixed exchange rate system. It can be shown that Ω_3 approaches to minus infinity and Ω_4 to $-g/n$ when $b \to 0$. Thus, the variance of the interest rate differential also tends to infinity as $b \to 0$. On the contrary, when 'b' approaches to infinity, so that speculators' sensitivity increases, both Ω_3 and Ω_4 be shown to approach to $[g(a-n)]/[n(a+n)]$ (which is less than g/n).

When 'd' approaches to zero, the system is approximately a floating exchange rate regime. Then, it can be shown that Ω_3 reduces to $(c-g)/n$ and Ω_4

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to $(-g/n)$. Note that both of them do not depend on 'a' and 'b'. Thus, it can immediately be concluded that the variance of the interest rate differential is smaller under a floating rate regime than under a fixed rate regime when $a \to 0$ and/or $b \to 0$.[24]

2.6 *Forward Forecast Error*

2.6.1 *The Unbiasedness Hypothesis*

The explicit solution of a rationally expected spot exchange rate is given in equation (20). Updating it one period ahead, and subtracting F_t from both sides yields:

$$S_{t+1} - F_t = (\Pi_1 - 1)F_t + \Pi_2 S_t + \Pi_3 u_{t+1} + \Pi_4 w_{t+1}$$

$$= \Pi_2(S_t - F_t) + \Pi_3 u_{t+1} + \Pi_4 w_{t+1} \qquad (28)$$

because $\Pi_1 + \Pi_2 = 1$, and hence $1 > \Pi_1 - 1 = -\Pi_2 > 0$. Thus, we can derive the following three characteristics of a rationally expected forward forecast error.

First of all, if we start with a situation with a flat between the two rates, i.e., $S_t = F_t$ the forward forecast error has a zero bias. Secondly, when there is a forward premium or discount, i.e., $S_t - F_t > (<) 0$, the forward bias is a fraction of the premium or discount, but it is opposite in sign, because $-1 < \Pi_2 < 0$. Thirdly, the risk premium consists of the spread between $S_t - F_t$, multiplied by $\Pi_2 = \gamma_2/(\gamma_2 - \gamma_1) = -an/b(a+n) < 0$. Thus, we can easily confirm that:

$$\partial\Pi_2/\partial a < 0\,, \quad \partial^2\Pi_2/\partial a^2 > 0\,, \quad \partial\Pi_2/\partial b > 0$$

$$\partial^2\Pi_2/\partial b^2 < 0\,, \quad \partial\Pi_2/\partial n < 0\,, \text{ and } \quad \partial^2\Pi_2/\partial n^2 > 0$$

and that $\Pi_2 = 0$ at $a = 0$, or $n = 0$, or $b \to +\infty$. Thus, the forward forecast error has zero bias if there is no arbitrage effect (zero capital mobility), or no credit supply effect, or an infinite speculative effect.

It should be recalled that equation (27) does not require such assumptions that the sensitivity of speculators of expected profits, 'b', be infinite (see Driskill and McCafferty (1982, p. 325), and that the covered interest arbitrage schedule is perfectly elastic, so that 'a' be infinite (see Driskill and McCafferty (1982), p. 318). Thus, we can also prove a case where $\Pi_2 = 0$ in a limiting special case where $a \to +\infty$ and $b \to +\infty$, a case discussed in Driskill and McCafferty (1982). However, as remarked earlier, Tsiang (1959) argued that 'b' is relatively large and 'a' is relatively small, especially in the short-run.[25] Then, their assumption of $a \to +\infty$ is redundant, because we can show $\Pi_2 = 0$ without it.

[24] This confirms Kenen (1985), p. 655 and p. 661.

[25] Recall that b>a is a sufficient, but not necessary, condition for $-1 < \pi_2 < 0$, the stability of the spot rate.

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Our analysis also reveals some of the interesting features of our model, especially interaction between the credit and the foreign exchange markets. In the limiting case where $n = 0$, the supply of credit is not expected to increase by an increase in the domestic interest rate. Thus, all the changes in the domestic loan market must be made through adjustment in borrowing from abroad. This implies in our model that the spot foreign exchanges bear the full burden of adjustment, and it is rationally expected by all market participants. Thus, there is no reason to expect that the rationally expected future spot rate deviates from the current forward rate. In other words, as long as 'n' is different from zero, so that there is a credit supply effect in the domestic credit market, a forward forecast error may arise because borrowings from abroad (i.e., spot foreign exchanges) do not necessarily adjust correctly so as to equate the demand and the supply of credits instantaneously.

2.6.2 *Squared Prediction Error*

We can examine another stochastic property of forward forecast error. To be more specific, we can analyze the average predictive ability of the forward exchange rate as to how good the forward rate is on average as a predictor of the future spot rate.

If the spot exchange rate equation (20) is updated one period, and the forward exchange rate F_t is subtracted from the resulting equation, we obtain:

$$S_{t+1} - F_t = -\Pi_2 F_t + \Pi_2 S_t + \Pi_3 u_{t+1} + \Pi_4 w_{t+1} \tag{29}$$

because $\Pi_2 + \Pi_1 = 1$ and hence $\Pi_1 - 1 = -\Pi_2$. Substituting the backward inverse solution (23) and the "forward inverse" solution (25) into the right-hand side of (29) yields:

$$\begin{aligned} S_{t+1} - F_t = {} & (\Pi_3 + \Pi_2\lambda_3)u_{t+1} + (\Pi_2\lambda_4 + \Pi_4)w_{t+1} \\ & + \Pi_2\lambda_3 \sum_{i=1}^{n-1} \lambda_1^i u_{t+1+i} + \Pi_2\lambda_4 \sum_{i=1}^{n-1} \lambda_1^i w_{t+1+i} \\ & + \Pi_3 \sum_{i=1}^{n-1} \Pi_2^i u_{t+1-i} + \Pi_4 \sum_{i=1}^{n-1} \Pi_2^i w_{t+1-i} \end{aligned} \tag{29'}$$

Because of our assumption of independence between the two disturbances, u_t (for the assets held by the central bank) and w_t (for the balance of payments), the expected squared forward prediction error is thus:

$$\begin{aligned} E[(S_{t+1} - F_t)^2] = {} & \left\{(\Pi_3 + \Pi_2\lambda_3)^2 + \frac{(\Pi_2\lambda_3\lambda_1)^2}{1-\lambda_1^2} + \frac{(\Pi_2\Pi_3)^2}{1-\Pi_2^2}\right\}\sigma_u^2 \\ & + \left\{(\Pi_4 + \Pi_2\lambda_4)^2 + \frac{(\Pi_2\lambda_4\lambda_1)^2}{1-\lambda_1^2} + \frac{(\Pi_2\Pi_4)^2}{1-\Pi_2^2}\right\}\sigma_w^2 \end{aligned} \tag{30}$$

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We are particularly concerned with the question of whether the expected squared forward prediction error eventually increases or decreases as the parameter value of 'b' (the speculative effect) increases. When 'b' tends to zero, γ_i (i = 1, 2, 3 and 5) and δ_i (i = 1, 2, 3) tend to zero, so that λ_i (i = 1, 2, 3) also tends toward zero. Thus, as long as $|\Pi_2| < 1$, the expected squared error converges to:

$$\left(\frac{\Pi_3^2}{1-\Pi_2^2}\right)\sigma_u^2 + \left(\frac{\Pi_4^2}{1-\Pi_2^2}\right)\sigma_w^2 \tag{31}$$

when 'b' tends to infinity, but as long as $|\Pi_2| < 1$, the expected squared error converges to:

$$\left\{\frac{(\Pi_2\lambda_3)^2}{1-\lambda_1^2}\right\}\sigma_u^2 \tag{32}$$

which can be rewritten as:

$$\left\{\frac{(\Pi_2\Pi_3)^2}{1+2\gamma_2}\right\}\sigma_u^2 \tag{32'}$$

Thus, $\Pi_3^2/(1-\Pi_2^2)$ when $b \to 0$ is larger than $(\Pi_2\Pi_3)^2/(1+2\gamma_2)$ when $b \to +\infty$. Hence, the expected squared forward prediction error is smaller with a perfectly elastic speculative supply schedule than with no speculation.

This conclusion has an intuitive appeal in that, as 'b' increases, the variance of the spot exchange rate decreases, thus making the future spot rate easier to forecast under rational expectations. Furthermore, the variance of the forward exchange rate also decreases as 'b' increases. Thus, under rational expectations, when investors take a speculative position, they can accumulate information about future courses of the spot and the forward exchange rates. Hence, the expected forward forecast error will definitely decrease when the sensitivity of speculators' response to profit opportunities 'b' increases. The reason lies in the simple fact that speculators take advantage of all available information in both directions, i.e., the past information of the spot rate and the future information of the forward rate.[26]

When $\sigma_w^2 \neq 0$ and $\sigma_u^2 = 0$, the expected squared prediction error monotonically decreases to zero as 'b' goes from zero to infinity. This is clear from an inspection of the second term of equation (31): $\partial[\Pi_4^2/(1-\Pi_2^2)]/\partial b < 0$, evaluated at $b = 0$.

[26]This is in keen contrast with the result obtained by Driskill and McCafferty. Here, rational expectations are extended both S and F, while their analysis was confined to a special case where only S was expected rationally. Once F is expected rationally by the forward inverse process, it may be unlikely for investors having expected squared forward prediction error to be larger when they engage in speculative activities.

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The foregoing analysis makes it clear that the effect of changes in 'b' on the expected squared prediction error is definitely negative through both changes in 'u' (the assets held by the central bank) and 'w' (the balance of payments) when investors form their expectations of both S and F rationally.[27],[28]

3. Summary and Conclusions

In this paper, we developed a model comprising spot and forward foreign exchange markets and a domestic credit market. The model also aimed at incorporating uncertainty explicitly and endogenizing expectations formations with a rational expectation mechanism. The model was then solved simultaneously for three endogenous variables, the spot and the forward exchange rates, and the interest rate differential, given the rationally expected, current and predetermined variables and exogenous variables. Assuming simple stochastic processes for exogenous variables, rational expectations solutions for the three endogenous variables were determined by an undetermined coefficient method.

The rationally expected spot exchange rate was shown to depend on the past values of endogenous variables, and the past and the current values of endogenous and exogenous variables. The rationally expected forward rate, however, was shown to depend on the future values of endogenous variables, and the current and future values of exogenous variables. Thus, the forward exchange rate in this model reflects the main feature of the asset market approach to exchange rate determination.

Changes in variance of the spot and the forward exchange rates and the interest rate differential were shown to depend on two sources of disturbance in this model; one is an unanticipated change in the balance of payments surplus, and the other is the one in domestic assets held by the central bank. As summarized in Tables 1 and 2, an increase in sensitivity of capital movement due to arbitrage will reduce the variability of the spot rate, but increase that of the forward rate through an unanticipated change in the balance of payments. An increase in sensitivity of speculators with respect to profit opportunities will reduce both the variabilities of the spot and the forward exchange rates.

Changes in a parameter 'd' are particularly interesting in that $d \rightarrow 0$ means that the system is a freely floating exchange rate regime, while $d \rightarrow +\infty$, a fixed exchange rate regime. It was shown that the variability of the spot exchange rate is smaller while that of the forward exchange rate tends to be larger under the floating system. It was also shown that the variance of the interest rate differential is smaller under the floating exchange rate system when

[27]This is consistent with the result of Driskill and McCafferty. They also showed that an increase in 'b' makes the expected squared prediction errors decrease. However, it should be recalled that their F was the realized forward rate, while here it is expected rationally.

[28]Since equation (30) is in a sense sophisticated in terms of parameters, it is difficult to evaluate the effects of change in other parameters. However, it can be proved that the coefficient of σ_w^2 converges to zero when a and g tend to zero, and when n tends to infinity.

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arbitrage capital is immobile internationally and/or when speculators' sensitivity with respect to profit opportunities is small.

Rationally expected solutions also enabled us to discuss some conditions under which the unbiasedness hypothesis holds. In particular, it was shown that the hypothesis is true if arbitrage capital is immobile internationally, or speculators' sensitivity with respect to profit opportunities is large, or an increase in the domestic rate of interest does not lead to supply of bank credit. The squared prediction error is a fairly complex function of underlying parameters. However, it could be confirmed again that the squared error is smaller when the speculators' sensitivity with respect to profit opportunities is large.

Appendix

This section develops some of the algebra underlying the results in section 2. To obtain an explicit solution for S_t, F_t and r_t in terms of exogenous and predetermined variables, we consider writing S_t as an unknown function of state variables (for ease of exposition, all constants are suppressed):

$$S_t = \Pi_1 F_{t-1} + \Pi_2 S_{t-1} + \Pi_3 u_t + \Pi_4 W_t \tag{A-1}$$

This trial solution makes use of the fact that we assume the linear structure of the model and the stochastic specifications (18) and (19) with the assumptions of $B = E = 0$. If the trial solution (A-1) is an equilibrium, then substituting from (A-1) for expectations into (15)–(17) must yield identities in the state variables. The resulting identities are:

$$\Pi_1 = \gamma_1 + \gamma_2\left\{\frac{\delta_1(1-\Pi_1) + \Pi_2}{1-\delta_2\Pi_1}\right\}\Pi_1 - \gamma_1\Pi_2 \tag{A–2}$$

$$\Pi_2 = \gamma_2\left\{\frac{\Pi_2 - \delta_1\Pi_1}{1-\delta_2\Pi_1}\right\}\Pi_2 - \gamma_1\Pi_2 \tag{A–3}$$

$$\Pi_3 = \gamma_2\left\{\frac{(\Pi_2 - \delta_1\Pi_1)\Pi_3 - \delta_1\delta_4\Pi_1}{1-\delta_2\Pi_1}\right\} + \gamma_4 \tag{A–4}$$

$$\Pi_4 = \gamma_2\left\{\frac{(\Pi_2 - \delta_1\Pi_1)\Pi_4 - \delta_1\delta_5\Pi_1}{1-\delta_2\Pi_1}\right\} + \gamma_5 \tag{A–5}$$

Solving (A-2)–(A-5) for Π_i ($i = 1, \ldots, 4$) yields:

$$\Pi_1 = \frac{-\gamma_1}{\gamma_2\delta_1 - \gamma_1\delta_2} = \frac{-\gamma_1}{\gamma_2 - \gamma_1} \tag{A–6}$$

$$\Pi_2 = \frac{\delta_1}{\gamma_2\delta_1 - \gamma_1\delta_2} = \frac{\delta_1}{\gamma_2 - \gamma_1} \tag{A–7}$$

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$$\Pi_3 = -\delta_4 - \frac{\gamma_4}{\gamma_1} \tag{A–8}$$

$$\Pi_4 = -\delta_5 - \frac{\gamma_5}{\gamma_1} \tag{A–9}$$

Substituting back into (A-1) yields the expression for S_t. The explicit solutions for F_t and r_t can easily be obtained by substitution of S_t into their reduced forms, (16) and (17).

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'REAL' CAUSES OF THE JAPANESE IMBALANCE

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1. A Preliminary Approach

Although the balance of payments is a monetary phenomenon, it also reflects differences in economic structure and performance of the various countries. These differences are not caused by monetary factors alone nor can they be remedied by monetary means alone. Thus, Japan's surpluses in recent years can be attributed to the opening of her economy to international trade through accession to the GATT in 1955 and her subsequent integration with her partners' economies ever since. At the time of writing, this process may be nearing completion. The argument is that much of the surplus was due to the process of integration and may become less or cease altogether once this process is complete.

Densely populated and poorly endowed with natural resources, Japan had to specialise in manufactures and rely on imported primary commodities. This is in line with received theories which explain why countries specialise in the production of goods in which they have a comparative advantage, and that comparative advantage depends on relative factor endowments. Given the state of the arts of manufacturing and primary production at the time, these theories correctly predicted Japan's increasing importance as a supplier of manufactures. What could not have been predicted was exactly how far this would go during the next thirty years when technology would be constantly changing. During those years, the Japanese economy came to be transformed from being the poorest of the major industrial economies in the 1950s to one of the most prosperous in the 1980s, from being a provider of cheap textiles to the US's most serious rival in R&D intensive electronic and biotechnological products, and from being one of the world's major debtors to its largest creditor in 1985 and 1986.

A country may be regarded as integrated with the rest of the world, when it can pay for imports without resort to foreign loans. Specialisation, as indicated by relative factor endowments, should then have reached its limits. External payments are in balance, so that the country neither gains nor loses influence across frontiers. Japan reached that stage in the 1970s but afterwards overshot the mark. This interpretation would suffice in a world where technology stands still or affects imports and exports alike. Such a world could be interpreted in terms of a two-factor, two-commodity and two- country model, where labour-intensive Japan exports manufactures in exchange for land-intensive

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primaries from 'the rest of the world'. In actual fact, a major feature of Japanese economic development was continuously changing technology which affected her exports more than her imports.

Hence a third factor must be introduced, which enables more intelligent production and so raises value-added in the process of production. (Here, it can be left open whether this third factor should be called 'capital' or 'knowledge'). During the relevant thirty years, this tended to be more important in manufacturing than in primary production. One result was a larger output of the same goods as were produced before, though now with less factor inputs per unit of output. This seems to have happened in the Japanese textile trade in the 1950s. Since a larger output of the same goods leads to intensified price competition, this aroused fear amongst established traders in importing countries. Japan was prevailed upon to accept quantitative export restraints, and these were continued in various forms even after her accession to the GATT. Japan's integration with industrialised GATT countries would then have been strictly limited, had she not found ways of going upmarket. That would take the form of either producing more valuable textiles or of changing production for export from textiles to higher value-added industries such as, for instance, motor cars. At least for a time, this would reduce the threat to established producers and the calls for special protection from imports from Japan. Later on, when established Western motor car producers too felt threatened, there were more 'voluntary restraints'. Again, the escape was either to produce more valuable units of the restrained goods or to move towards yet more value-added industries. By the mid-1980s, Japan has gone so far upmarket that she rivalled the US in some of the highest technology products of the day. Yet even then, she was still best at adapting rather than at originating technologies. An official report on Japan's foreign trade put this as follows:[1] "Traditionally, Japan had relied upon introduced technology which was imported from other countries and then adapted and improved. Its present task is to become stronger in basic research in order to develop more creative and original technologies on its own." The fulfilment of this task may be the final step towards the attainment of full economic integration with other industrial GATT countries.

The tie to the US economy has been particularly strong. Like other aspiring economies throughout history, Japan geared her export production to what was wanted in the largest and wealthiest economy of the time. She produced what sold well in the US market rather then what was wanted at home. This, by itself, meant that earnings would run ahead of spending. Although success in the US market was thought to be an advertisement for sales in the home market,[2] the latter tended to lag behind.

[1]JETRO, op. cit., p.26

2 Terutomo Ozawa: *Japan's Technological Challenge to the West, 1950–74*, M.I.T. Press, Cambridge, Mass., 1974, pp. 32–3 and 47.

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As time went on, export production became technologically more and more advanced, though until recently seldom as advanced as Western production. Japan's great export successes used to be in textiles, steel, motor cars and other products in which other countries had excelled before her. From her own point of view, growth was export-led which meant faster growth of exports than of production and imports. Again, until recently, this growth depended largely upon US conditions. Exports were oriented towards the richer and technologically more advanced market. They were determined by sales prospects of goods already selling there. They followed US demand.

While this continued, Japanese technology followed US technology to satisfy US demand. Since this meant rivalry with US and other Western producers, mutually acceptable integration depended upon moving upmarket where established Western producers did not yet feel threatened. This is likely to continue until Japanese innovative talent can complement the West's and more of Japan's trade with Western industrial countries is based on intra-industry specialisation rather than on competition in already established trades. By the 1980s, when Japan appeared to have attained technological equality with the West in some of the most advanced sectors, such as branches of the electronics and biotechnology industries, there should have been scope for at least some intra-industry trade. For the time being, however, the picture of Japan doing what others have done before, still prevails.

Nevertheless, Japanese exports have become more technology intensive, so that value-added in Japanese production has increased. Since technology advanced more slowly in the primaries Japan continued to import, the terms of trade would normally move in Japan's favour. This was only temporarily interrupted by large increases in oil prices in 1973/4 and 1979. Moreover, the more technology intensive goods are, the less is the input of primaries per unit of output. Hence the quantity of imported primaries needed, increased at a lesser rate than the volume of exports. With prices and volumes of primary imports rising less than those of exports in most years, the Japanese balance improved further.

By the mid-1980s, it had increased to the point of embarrassment. Since a balance of payments surplus can give a country increased influence over the rest of the world's economy, relations with other countries are affected. This raises questions as to whether the surplus country has the political power and will to sustain such a position. While this point cannot be elaborated here, it should be noted that a surplus may be resented by other countries and that it may not even be wanted by the surplus country itself. The Japanese surpluses strained trade relations with the US and other industrial countries, where rising imports from Japan were seen as a cause of difficulties for already depressed domestic industries. Often this led to more 'voluntary' export restraints on Japanese producers. Relations with all countries were affected by the prospects of increased Japanese economic influence.

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It will be argued that a major cause of the Japanese surpluses was the process of international economic integration (Section 2). To elaborate this point, it will be necessary to look at definitions of factors (3) and goods (4), and to consider the implications for production and trade (5 and 6). This will be followed by a brief comment on Japan's trade with the Far East.

2. Integrating Inter- and Intra-trading Economies

Japan has trodden the path countries are accustomed to take when they open their economies to freer international trade. As mentioned before, she specialised in products using more of her relatively abundant factor provided by nature, namely labour. And she came to rely increasingly on the import of commodities which embody more of the other factor provided by nature, namely land (including natural resources of all kinds).

Assuming constant technology, capital can be regarded as stored up labour. This was done in classical models and continues to be done in all two-factor models which do not distinguish between natural and man-made factors (even if they name one of their two factors 'capital'). This approach helps to explain most countries' trade patterns until the 1950s. It can also explain why comparative advantage in some of the older technology industries has shifted to the Far East, and why any newcomer to integration will initially take advantage of freer trade by concentrating on activities which require more inputs of its relatively abundant factor.

Take the last point first. The problem of integrating Japan and other Far Eastern countries has some less dramatic parallels in European integration, at any rate in the days of fixed exchange rates. Generally, the initial effect was growth of inter-industry trade, with reliance on relative factor endowment. Almost inevitably, this would be more marked in the less advanced partner country, where there would still be more opportunities for fuller use of natural factors and especially of its relatively abundant factor. The trade balance would turn in its favour. The technologically more advanced partner would already have exhausted more of the opportunities for specialisation on the basis of its natural factor endowment. Hence its further trading opportunities would depend more on man-made ones. These require new skills and new machinery designed to overcome the scarcity of existing factors. This takes more time than making more use of an already available and abundant factor, and doing so with unchanged technology. Until this additional time has passed, the more advanced country's trade balance is likely to deteriorate.

(This contrasts with the traditional case of two countries where relative factor endowments differ but technology is the same, and freer trade leads to each country specialising in goods making more use of their relatively more abundant natural factor. The effect of freer trade on the two countries' trade balance is unpredictable. Corrections of imbalances in trade are left to exchange rate adjustments which limit specialisation to what the two countries can afford.

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The present case also contrasts with the technology gaps between advanced industrial countries with similar factor endowments. Both countries have already fully utilised their natural factors and depend upon man-made ones for further growth of production and trade. In their case, freer trade would normally improve the trade balance of the technologically more advanced one. The solution to this problem of imbalanced trade must be sought in technology rather than in monetary policy).

The Japanese case concerns freer trade between a country which still has abundance of a natural factor and a country (or group of countries) which has already fully utilised its natural factors. Here the initial effects include an improvement in the *less* advanced country's trade balance. As the initially less developed country makes more use of its abundant factors, it too will become increasingly dependent upon man-made factors. Eventually, when both countries are fully developed, in the sense of having no spare natural factors, both countries will turn towards specialisation within industries and intra-trade. Since intra-industry trade means growth of trade in the same product group in both directions, trade between the two countries will become more evenly balanced.

The process of integration between the Far Eastern countries and the West implies an initial period where the newcomer intra-trades according to the predictions of traditional theory. In the case of Japan, the 'initial' period has already taken a generation. Intra-industry trade and more balance of trade will not fully develop until Japan has no more spare natural factors than the West has. To stress the point once more, the *initially* less advanced country will not be ready for specialisation *within* industries and intra-industry trade, until it no longer has an abundant natural factor needed for specialisation *between* industries and inter-industry trade. [3]

In so far as full economic integration can be achieved through changes in external trade policy, the EC countries were examples of such integration through free trade or customs union. Only when tariffs and other external impediments to trade had been removed, would domestic ones become apparent. In Europe, where the target is a 'common market', this has by now become a policy issue. In Japan's economic relations with the West, such a union is not a realistic aim at the time of writing. The term 'integration' will therefore be used in the narrower sense of freeing trade from tariffs, quotas and other impediments to trade at frontiers. Even in this sense, integration through GATT is only partial integration, since GATT makes trade freer but not entirely free. For this reason alone, the integration of Japan was bound to take longer.

[3]On the sequence of inter- and intra-industry specialisation, see Elhanan Helpman and Paul R. Krugman: *Market Structure and Foreign Trade*, Brighton, Wheatsheaf Books, 1985, esp. Chapter 7; on the sequence in international economic integration, see Dermot McAleese: 'Do Tariffs Matter?', *Oxford Economic Papers,* March 1977, and 'International Specialisation and Trade in Two Small Economies', *Economic and Social Review*, January 1976; and F.V. Meyer: *International Trade Policy*, London, Croom Helm, 1978, Chapter 5.

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Geographical distance and differences in social and commercial outlook added to the difficulties. Moreover, the very size of her economy made integration a more long drawn out task than would be the integration of a smaller economy.

Whatever the special problems were in the economic integration of Japan with other industrial GATT countries, they lay not entirely with one side. Japan's external trade structure may be unique amongst industrial countries in the 1980s, but this had not always been the case. As late as the 1950s, the trade patterns of the major Western industrial countries was similar to that of Japan in the 1980s (or at any other time during the post-war period to-date). Then, they too exported mainly manufactures and imported mainly primary commodities. That pattern had emerged in the 19th century and been propped up by protection in the inter-war period. When war-time and earlier protectionist barriers began to be dismantled in the 1950s, it was still thought that freer trade would lead to inter-industry specialisation and, therefore, relocation of industries between countries. Amongst Western industrialist countries, it did not.

Had there been a major change in the international location of industries, international specialisation between manufacturing industries would have followed a similar pattern to that between primary and industrial activities which had been evolved during the 19th century. Only this time, it would have been one country specialising in, say, textiles and another in, say, motor cars. Although this did not happen in the West, it did occur between Japan and the West. Comparative advantage in labour intensive activities went Eastwards. This was international specialisation based on natural factor endowments. By contrast, the Western countries had to rely increasingly on specialisation based on man-made factors. In this respect, the West had changed more than Japan has done to-date.

3. Natural and Man-Made Factors

Specialisation *between* industries and inter-industry trade depend on specialisation in accordance with natural factor endowments. When these possibilities are exhausted, further specialisation is possible only *within* industries, and this depends on man-made factors, namely capital and knowledge. That happened in the West. Although imports of primaries continued to grow at a rate closely related to the rate of growth of industrial production, as it had done before, and exports of manufactures to pay for those primaries also continued as before, a new form of trade developed between Western countries. This consisted of simultaneous growth of imports as well as exports of manufactures within the same product group. It was not limited by the rate of growth of industrial production but exceeded it. Most of the growth of Western countries' trade, since the 1950s, has been of this nature. The result is that they import as well as export more manufactures than primaries. No such change in the external trade pattern has as yet occurred in Japan. While nobody

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would deny the skill of Japanese industry in making the best possible use of capital and knowledge, this has not yet affected the country's external trade pattern.

By definition, there is no natural endowment with man-made factors. They have to be acquired. But, where there is no technological change, capital is stored up labour and acquired through abstinence from current consumption and accumulation of the saved resources. The relevant knowledge is constant. If so, capital is a received factor and may seem as 'free' as if it were a natural one. Perhaps it is best described as 'quasi-natural'. Before the 1950s, when technological change was slower than it has been since, it may have been legitimate to assume constant and identical knowledge in the two countries of two-factor models, without doing too much violence to the facts. This is no longer possible. Capital has come to life through continuous advances in knowledge.

Again, a distinction must be made between received or basic knowledge and new knowledge. Basic knowledge is acquired through education and training. Although this is the foundation of human capital, it still is a form of stored up labour like any other form of capital which results from past effort alone. So far, it is not yet necessary to go beyond a traditional two-factor model. But it does become necessary where basic knowledge is no longer enough. Where industry changes, its requirements can be met only through variations in the use of factors. *New* knowledge is needed. R&D provides it. Both human and physical capital can be made to change so as to satisfy the increasingly varied demands of modern society. This distinction between old and new knowledge gives us two man-made factors. There is old or received knowledge, due to human effort in the past, which has been defined as a quasi-natural factor. Combined with natural factors, it provides the basis for inter-industry specialisation and trade. New knowledge, or R&D, is the basis of further advances. It combines other factors so as to create the new processes and products modern society demands. Where such new knowledge predominates amongst producers, it provides the basis for intra-industry specialisation and trade.

4. Commodities and Products

At this point, it may be useful to digress yet further from the theme of external imbalances in order to distinguish between commodities and products, since this may help to clarify some of the difficulties in the commercial relations between East and West. It should also help to clarify why traditional remedies for imbalanced trade no longer suffice.

Although businessmen have always known the difference between these two kinds of goods, it is all too often ignored in Economics. A trade in *commodities* is one where numerous producers provide perfect substitutes. The goods are sold to merchants who, in turn, sell them to numerous retail outlets.

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In other words, selling is through a market which is independent of producers or consumers or both. Textbook models of perfect competition are relevant. Examples are primary commodities and any other goods where technological change does not appreciably alter the characteristics of the final output. By contrast, *products* have characteristics of their own. There are no perfect substitutes. They are made by only one or a few producers. Competition is imperfect. The most R&D intensive manufactures are in this category, though only for a time: the longer a product is in the market, the more likely is it to become a commodity.

Commodities are produced by making use of factor endowment. Natural and quasi-natural factors are combined for the repetitive creation of standardised goods. The sole conditions for entry into such activities is to gain control over natural factors and knowledge of how to use them in traditional ways. With technology given, little or no *new* ingenuity is needed. Economic life is a struggle for factors, followed by one for market shares. Each producer's success depends on getting factors on the best possible terms. Where some of these factors are imported, international relations are affected.

This kind of rivalry continues to be important in inter-industry trades, where the possession of received factors is still the basis for success. But with the growing importance of products, value added by new human ingenuity has become more important relative to that of natural or quasi-natural factor inputs. Competition in making one's own contribution has displaced the need to rival or displace others. International rivalry need no longer be for the possession of factors but can be based on relative ingenuity. Any imbalance must be remedied by educational and technological advances rather than by the traditional weapons of foreign economic policy, such as trade controls and exchange rate adjustment.

In traditional inter-industry trades, free trade can release the demand for imports. It cannot overcome supply limitations. These persist even in the absence of export cartels, export taxes and other restraints imposed by the suppliers' governments. The principal restraint, even in a perfectly free market, is decreasing returns to scale. Output can expand only if more factors are brought under control *and* are brought under control in the right proportions. For instance, if a country's employable population does not change much in numbers and its land area cannot be increased, as is the case in Western industrial countries, additional factors would have to be capital. With given technology, the increase in capital relative to other factors would lead to decreasing returns to scale on capital employed. Economic decline would be inevitable, were it not possible to make use of R&D and specialise in products. That was the course taken by most Western industrialised countries.

By contrast, the Far Eastern countries still had abundant labour which could be employed with the aid of technology received from abroad. So they could stave off decreasing returns to scale. Japan may be approaching the end of this road, but the other Far Eastern countries still have a long way to go on it.

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Japan's continuous upmarket movement meant that, from her point of view, she was turning from commodities towards products. Her exporters would expect to be treated more as equals than as rivals, if only because they provided the importing countries with a larger variety of goods than were available before. They would try to compete more on quality and would set prices for their goods more in relation to those prevailing for the nearest substitute in the importing countries. The more their markets grew, the more profitable they became: because such goods tended to be produced under increasing returns to scale, their unit costs of production fell as output rose. Japanese manufacturers would welcome the opportunity to export and expect a friendly welcome in the importing countries.

Yet that welcome tended to be rather muted. It was confined to occasions when the goods would otherwise not be available. Moreover, most of Japan's export successes were in goods which had been selling in the Western industrial countries for some time. That time may be getting shorter: textiles had been sold since time immemorial, but the latest microchips only for a few months before the Japanese version arrived. Be that time long or short, the imports tended to be close substitutes for what was already available and, especially in the newer industries, deprived home producers of long enough production runs to make their investments pay as they had hoped. Moreover, because the imports were close substitutes for what was already available, competition could not be primarily on quality but was often on price. Unlike Western manufacturers who had taken more care to differentiate their products and sell on quality, the element of price competition was still strong enough in imports from Japan to cause resentment. The Japanese were still treated as inter-traders who rivalled established local producers and were subjected to special restraints which the Western industrial countries no longer thought of imposing on each other.

In other words, although Japan has continuously moved closer to product or quality competition, she has not yet quite got there in most goods. Until she does, there will be problems in reaching understanding between the intra-trading West and what, from a Western point of view, is still largely an inter-trading country. The shortening of the time lag between the introduction of new goods and the appearance of its Japanese version, already diverts fear of Japanese goods from the traditional to the advanced sectors. Should all go well, the next step would be simultaneous introduction of Western and Japanese goods which complement a product range rather than rival existing ones. It should be recalled that this is not a special problem of the integration of Japan, but a general problem of international economic integration.

These points should suffice to show that there are balance of payments problems which are not due to monetary causes. If the imbalance is attacked by monetary means, these may not be enough. They may suffice where both countries' trade is inter-industry trade and possibly where both intra-trade. But they cannot by themselves solve problems caused by different trading

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structures, especially since the problems of inter- and intra-traders may call for different monetary (or other) measures.

5. The Skill Gap

One of the points made so far is that Japan is an importer of commodities. In other words, imports from any one source will be influenced by price, while total imports depend more on the volume of Japanese production. Competition is a struggle for shares in a given market. Exports consist more of products, though the product element of Japanese exports must appear higher to the exporters than the importers. Exporters try to compete more on quality than on price. Ideally, they should try to create new markets. But this has not yet gone far enough for Japanese goods to be accepted as additions to, rather than as substitutes for, what is already available in importing countries. They are still seen as competitive with what there was before. One consequence is that Japanese goods are still liable to controls which Western industrial countries no longer impose on each other.

The larger commodity element in Japanese than in Western industrial exports, depends on the availability of more abundant labour in Japan than in the West. Yet, Japan had a lower unemployment rate than Western industrial countries throughout the 1970s and 1980s to-date; employment in the private sector increased less in Japan than in the US from the mid-1960s onwards, though by more than in Europe;[4] and her exports became more R&D intensive and, by implication, less labour intensive and more like products. In order to reconcile these points, it is necessary to have a closer look at what is meant by 'abundant labour'. This will be limited to basic economic principles.

In classical and neo-classical models, labour is assumed to be homogeneous. If this means that labour is just so and so much toil, and that what one labourer does every other one can do just as well, the model is too far removed from reality to have much relevance to modern industrial society. But once we pick out the essential characteristic of homogeneous labour, namely its transferability, we have a more useful concept. In that case, the natural factor 'labour' need not be an unskilled one. *Transferable* labour has the skills expected of any school leaver *and* those acquired in established activities. As such, it is a received factor, consisting of toil and stored up knowledge. If it is also *trainable* for activities which require new skills, it can become active human capital—which is a new man-made factor. So it will be until the newly acquired skills become part of the received knowledge of industry. By then it reverts to being a natural or quasi-natural factor.

Where labour is transferable between existing occupations and trainable for new ones, the potential labour supply is always more adequate than in economies where there are more rigid labour markets. Labour would seem to be more transferable and trainable where there is a gradual upmarket movement

[4]JEETRO, p. 3.

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in industrial production. The reason is that the gap between the skills required and those available, is less than where there are fewer intermediate stages. This point will be elaborated with a simple model.

Assume two countries, Europe and Japan;
rising incomes;
a skill intensive new product *z* of industry *Z*;
a labour intensive product *x* of industry *X*;
an intermediate product *y* of industry *Y*;
all labour is in one of the three industries and, to start with, there is no unemployment;
X, Y, and *Z* are of equal importance as employers of labour in Japan, but *Y* is relatively unimportant in Europe.

When incomes rise, aggregate demand will also rise. But demand for individual products does not necessarily rise at the same rate. In a developed industrial economy, where basic needs were already largely met at previous income levels, rising aggregate demand normally implies a shift in demand from labour intensive *x* towards skill intensive *z* and a corresponding shift in production from *x* towards *z*. Labour and other factors will move the same way.

For at least two reasons, this is easier in Japan where the intermediate industry *Y* is as important as the other two industries. One reason is the gap between the skills required in the three industries. It would normally be easier to retrain *X*'s labour for the requirements of *Y*, and *Y*'s for those of *Z*, than to retrain *X*'s labour for *Z*. Hence labour could more easily move from *X* to *Y* and from *Y* to *Z* than directly from *X* to *Z*.

The second reason is that the move from *X* towards *Z* is a move from a received and labour intensive industry towards one which seeks new markets and so needs new skills. Because *Z* is less labour intensive than *X*, the loss of employment in *X* must be compensated by an appropriate growth of the economy as a whole. Otherwise there will be unemployment. For instance, if *Y* needs 10 per cent less labour per unit of output than *X* does, and *Z 10 per cent less than Y*, a growth rate of 10 per cent would absorb the surplus labour. But if there is no *Y* industry, the gap between the labour requirements of *X* and *Z* is twice as large and the growth rate would have to be 20 per cent to absorb the surplus labour. Even this ignores the greater difficulties in retraining from *X* for *Z* than from either *X* for *Y* or from *Y* for *Z*.

Although this model is a long way from reality, it helps to show that the nearer we are to a two-industry model, the more difficult are the retraining and employment problems. Europe and the US were nearer to the 'Europe' of this model than Japan, while the latter was nearer to the 'Japan' of the model. Amongst the reasons is that the US reached for Space. While it is not denied that this was a noble aim, no one can claim that it was a commercial one. It depended upon 100 per cent subsidies. It took factors away from other R&D intensive activities. Hence the US's *Y* industries were smaller than they

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otherwise could have been. The UK reached for the skies in subsidising the aircraft industry, while all of Europe subsidised the most R&D intensive activities so as not to be left behind in the technology race. Once more, it meant that some of the best brains and some of the most highly skilled labour were kept away from activities which could have led to more commercial success.

At the same time, Europe and the US felt they had to support their declining industries, especially since these were the most labour intensive ones and often geographically concentrated. Either they gave protection which led to higher prices and therefore lower real incomes to consumers which, in turn, meant less demand for *y* and *z*; or they gave direct subsidies which had to come out of taxation, including taxation of the *Y* industries. In short, by subsidising their *X* and *Z* industries, they kept their *Y* industries smaller than they need have been. This split their labour markets and so aggravated their unemployment problems of the 1970s and 1980s.

Curiously, we now expect Japanese foreign investment to fill some of that gap for us, even if for Japan it means hiving off yesterday's successes, such as motor cars. The real Japan did not reach for either Space or skies but concentrated on the roads. That is where the money was. And that is how she was able to save for going upmarket, to retrain labour and avoid excessive unemployment during her upmarket moves. Because there was always a *Y*, something could be done with the labour discarded by *X*. And because there was always a large enough *Y*, there were always factors which could be retrained for *Z*. That is one reason why Japan had more 'abundant' labour and less unemployment than the Western industrial countries.

6. Trade Implications of the Skill Gap

In previous sections, it was argued that what Western labour can do it already does. The same applies to other natural or quasi-natural factors. The preceding section has added to this the greater fragmentation of 'European' than of 'Japanese' labour markets because Europe subsidises its *X* and *Z* industries while Japan does not (or does so to a lesser extent). The resultant constraint on Europe's *Y* was said to have exacerbated the European unemployment problems of the 1970s and 1980s. It will now be argued that this also had adverse effects on Europe's ability to compete in international markets.

When a subsidy is given to *X* in order to maintain employment in that industry, labour in *X* is now overpaid in relation to value added in *X*. It is paid for value added in the past or for value which could have been created in alternative employment. But it can no longer add that much value in *X*. The result is cost inflation in *X*. Since *x* is a commodity (or at least more like a commodity than *y* or *z* which have greater product elements), it is sold in a price sensitive market. Since one effect of such a subsidy is cost inflation in European *X* and there is no equivalent cost inflation in Japan, the latter is at a cost advantage in international competition in *x*. The more abundant labour is in

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Japan, the greater is that advantage. If labour is even more abundant in other Far Eastern countries, they are at a cost advantage relative to Japan and even more so relative to Europe. If so, those countries will beat Europe in international competition in markets for *x* and may even penetrate the European home market. Note that one of the reasons is that Europe has created cost inflation in her *X* industry by keeping factors there, though they could have added more value in *Y*.

One further consequence of keeping labour in *X* when it could add more value elsewhere, is that Europe's real income rises less than it would in the absence of a subsidy to *X*. Hence European demand for *y* and *z* also rises less. Yet a more than proportionate rise in demand for *y* and *z* is needed in order to absorb labour no longer needed in *X*.

Moreover, the commodity element is greater in *x* than in *y*, and greater in *y* than in *z*. As shown in section 4, commodities are likely to be produced under conditions of decreasing returns to scale. To keep such industries larger than they would be in a free market, raises their unit costs. This reduces the competitiveness of the economy as a whole. At the same time, products are more likely to be produced under increasing returns to scale. To keep product-producing industries smaller than they could be, again raises unit costs and again reduces the competitiveness of the economy as a whole.

Y is kept smaller than it need be, partly because of the effects on the demand for *y* and partly because of indirect effects of the higher labour costs in *X*. Because of the subsidy to employment in *X*, it is more difficult to attract labour from *X* to *Y*. If traditional wage differentials have to be maintained to attract some labour from *X*, *Y* must pay that differential plus the subsidy. Costs are raised in *Y* and the international competitive position of *Y* is weakened. If there is also a subsidy to *Z* then *Y* will lose labour and other factors to *Z*, unless it also pays its factors the subsidy they could get in *Z*. This would further undermine the competitiveness of Western *Y* relative to Japan's.

Since *Z* receives a subsidy, it may be compensated for any effects the higher labour costs in *X* and *Y* have on the cost of labour in *Z*. Like *X*, it can afford to employ more factors with the subsidy than without. If it is an increasing returns to scale industry, where unit costs fall with a rise in output, the subsidy to *Z* itself may be regarded as cost reducing, though the subsidy to *X* may have indirect cost raising effects on *Z* because of the effects on *Y*.

Moreover, the subsidy to *Z* may encourage an expansion of production ahead of a possible rise in demand, even if we ignore the limitation on the rise in the demand for *z* caused by the subsidy to *X*. One result is that some of the increase in *Z*'s output is beyond market demand. If it is to be used, it must be used for prestige projects rather than for commercial purposes. By contrast, Japan's *Z* industries produced for the market.

In short, the preservation of *X* and the overexpansion of *Z* through subsidies is at the expense of *Y*. If the US and European countries protect or subsidise

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their *X* industries, such as textiles, and their R&D intensive sectors, such as electronics, they do so at the expense of intermediate industries, such as motor cars. They also raise costs all round, to the detriment of their export trades in *each* of the three industries or groups of industries. At the same time, they aggravate their unemployment problems owing to the greater difficulties in bridging the skill gap between *X* and *Z* than that between either of these industries and *Y*.

7. Japan and the Far East

If Japan's trade with the West can be explained in terms of relatively abundant labour, her trade relations with other Far Eastern countries were based on relative abundance of capital in Japan. Compared with the West, Japan may not yet have reached the final stages of catching up in technology, but in the Far East she has the technologically most advanced and capital intensive economy.

The sort of capital Japan needed to produce goods for trade with the Far East tends to be the sort of capital which has for long been used in the production of goods for domestic trade or trade with the West. It is received capital which makes it a quasi-natural factor. Hence in relation to both East and West, Japan specialises in goods which are intensive in a natural or quasi-natural factor.

One consequence is that her exports can be regarded as commodities in both trading areas. In the Far East, there is not yet any need to create new products and markets for such new products, as long as her trading partners in that region are not yet sated with more traditional ones and as long as they can specialise on goods which they can produce in more labour intensive ways than Japan.

To stress the point once more, Japanese trade with East and West is based on natural and quasi-natural factor endowment and her exports are sold as commodities in the Far East and more like commodities than Western goods in the West. Hence traditional trade theory can provide useful guidelines to a first approach to Japanese trade overall, and also to her trade with the two areas where she has accumulated most of her trading surpluses.

Yet there are differences, especially when we are not content with a snapshot of the present position but take account of further development. Just us much as Japan is catching up with the West, so the other Far Eastern countries are catching up with Japan. One result, so far, has been the appearance of trades which seem to be intra-industry trade. These result from shifting comparative advantage in either the final product or in components. The former is specially important in textiles and other low technology industries. As Japan went upmarket, comparative advantage in the more labour intensive industries shifted from Japan to newly industrialised countries in the Far East. Japanese exports of such goods to the region became less and imports increased. For a time, exports and imports of such goods became more balanced. It is too early to say whether this will continue or be just a phase resulting from shifting

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comparative advantage. In any case, this kind of trade has not yet become important enough to alter the overall picture of Japan's trade with other Far Eastern countries which continues to be mainly an exchange of Japanese manufactures for primary commodities.[5]

What happened in labour intensive industries had its counterpart in labour intensive activities needed in high technology industries, and especially in electronics and consumer electronics. Here the most value added products continue to be produced in Japan. But products which are less technology intensive or labour intensive components are increasingly produced in other Far Eastern countries.[6] This is a form of intra-industry trade which is *not* like the Western horizontal intra-industry trade (where factor endowments are similar and specialisation takes place in order to make use of economies of scale in high technology production). What happens in the Far Eastern trades is specialisation in goods and activities with different factor intensities. It is compatible with traditional international specialisation based on relative factor endowments. Only this time, the trade is not between manufactures and raw materials but between manufactures and components of different factor intensities, which often are within the same product range. Where the exports of one country are labour intensive varieties and those of the other country capital intensive ones within the same product range, and where the exports of one are components of the industries in the other, there appears to be a kind of vertical intra-industry trade.

These trades are not yet of sufficient importance in Japan's total trade with the Far East, to allow for a firm assertion that shifting comparative advantage is more than *apparent* intra-industry trade during the phase when Japanese exports rise less than before or fall while those of other Far Eastern countries rise. *Vertical intra-industry trade* may appear to be a form of intra-industry trade, but it can be explained in terms of relative factor endowment. At the same time, it is not production for a price competitive market, but to supply components to particular manufactures or to complement their product range. Perhaps this kind of trade is best described as a hybrid between traditional inter-industry trade and *horizontal intra-industry trade*. It remains to be seen whether and when these trades will become of sufficient importance to alter the picture of Japan's trade with the Far East from being predominantly inter-industry trade.

Generally, Far Eastern trade is developing in relation to Japan the way Japanese trade used to develop with the West. Neither Japan nor the rest of the Far East has as yet reached the stage of genuine horizontal intra-industry trade. Unless and until that stage is reached, Japan-Far East trade remains trade in

[5]Yoko Sazanami: *Some Policy Implications of Intra-Industry Trade for Japan*, Chapter 10 in David Greenaway and P.K.M. Tharakan (Eds.): *Imperfect Competition and International Trade*, Sussex, Wheatsheaf Books, 1986

[6]Shibusawa Mahaside: *Japan and the Pacific Region, London*, Croom Helm, 1985, p. 145.

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goods made from natural and quasi-natural factors. These trades can be explained in terms of comparative costs and factor endowments.

8. Concluding Comments

Where trade is in given goods which are produced in given ways, international specialisation is between industries in accordance with comparative costs and factor endowments, and trade is inter-industry trade. Imbalances in external payments can be adjusted in the following ways. The surplus country may invest in the deficit country. If so, the former increases its influence in the world economy and the latter's comparative advantage is enhanced. Or the deficit country may impose tariffs and other trade controls. In doing so, it would distort comparative costs. Or there may be exchange rate adjustment which influences the volume of participation in international trade but leaves comparative costs unchanged. On the whole, this still seems relevant to Japan-Far East trade, though even here there are signs of new developments which may require further guidelines.

Japan-West trade already does. Once Japan's integration with her industrial GATT partners is complete, there will be more intra-industry trade in a continuously changing assortment of goods which are produced with ever changing technologies. By then, international specialisation must be within industries and trade be intra-industry trade. Since intra-industry trade is two-way trade, external trade should become more balanced. The unusually large Japanese surpluses from the 1960s to the 1980s should then become part of history. The argument is that must of those surpluses arose from Japan's increasing economic integration with the industrial GATT world, and that those surpluses will become less or cease once the integration process is complete. During the process of integration, Japan still had abundant labour. The West no longer had such labour, and it aggravated the position by protecting or subsidising its *X* and *Z* industries at the expense of its intermediate *Y* industries. If so, the Japanese surplus with the West should become less or cease in the 1990s. By then, both Japan and the West may experience similar problems with other industrialising countries in the Far East to those experienced by the West with Japan until the 1980s, assuming that those other countries will become more open and more integrated with countries which no longer have abundant factors.

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REGIONAL COOPERATION IN THE SOUTH ASIAN SERVICE SECTOR: THE BANGLADESH CASE[1]

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Although serious conceptual and statistical problems are encountered in any discussion on cooperation in services,[2] there is no denying the fact that the service sector is becoming increasingly important for most countries around the world. A leading theme in 20th century US economic history, for example, is the transition from an industrial to a service economy. Services account for two-thirds of gross national product and are at the cutting edge of technological innovation in that country.[3] Services are also an important source of growth and development in the Third World. Many services are viewed as critical factors in the development process. This sector "satisfies certain basic needs of the population, creates jobs, provides inputs for agricultural and industrial production, and creates infrastructure. It also acts as a catalyst for trade, by providing many developing countries with a major source of foreign exchange. The development of a service infrastructure contributes to their ability to attract and absorb advanced technology and has important implications for the capability to innovate and to increase competitiveness in the production of goods".[4] At present the share of the service sector in GNP of the developing economies is estimated to range generally from 29 per cent for low-income

[1]This paper is based on a research report entitled "South Asian Cooperation in the Service Sector: A Bangladesh Perspective", which has recently been prepared by the author, and further work on which is still progressing. The observations here are, therefore, essentially to be viewed as preliminary in nature.

[2]Questions arise relating to the scope of coverage, characteristics of activities of outputs, and types of transactions to be included. For example, some definitions include, while other exclude, such activities as transportation, communication, public utilities, construction, and wholesale and retail trade. Again, some definitions stress such characteristics as tangibility, visibility, portability, and storability to mark the dividing line between goods and services. For details on all these problems, see, for example, Bernard Ascher and Obie, G. Whichard, Improving Services Trade Data, prepared for Services World Forum, Geneva, Switzerland, May 13, 1986.

[3]See, Craig VanGrasstek, "Trade in Services: Obstacles and Opportunities", *Economic Impact*, 1987/3.

[4]GATT Newsletter, *Focus*, 60, March/April, 1989, p. 5.

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economies, to 49 per cent for medium-income and 52 per cent for upper-middle-income countries.[5]

Side by side with the increase in the service sector within various countries, there has occurred a phenomenal growth in international services trade as well. Over the past decade and a half, global services exports have grown in lock-step with merchandise exports and currently they account for more than a quarter of total world trade. And this share is expected to further increase in future for a number of reasons including the following: [6]

First, there has been a dramatic increase in the tradeability of services as a result of revolutionary changes particularly in information technologies which has reshaped industrial organizations and labour markets and opened up new opportunities for internationally provided services. Second, there is a growing interlinkage between services and goods production: services provide essential inputs (from engineering design to data processing), drive the production process (by means of robotics and automated assembly lines), and facilitate marketing of goods (e.g. finance, insurance, and after-sales maintenance). Finally, the liberalisation of trade and capital markets has contributed to growing demand for services in increasingly interdependent markets.

The world services trade, however, is completely dominated by the industrial countries, accounting for about three-fourths of the total value.[7] The USA, followed by the European Community and Japan have competitive edge in many service industries. The USA, for example, enjoys comparative advantage not only in such traditional services as insurance, banking, and motion pictures but also, and more importantly, in services associated with the explosion of information technologies, data processing and data-base services, satellite transmission, and similar other telecommunications services. As a matter of fact, there has already occurred a significant shift in the US service sector from the traditional to the high-technology information industries, employing respectively 10 per cent and over 60 per cent of the US work force.[8]

As against this, the position of the developing countries is not so monolithic. A number of them have proved to be successful exporters of services. Some of the newly industrializing countries, such as the Republic of Korea, Taiwan and Singapore even generate small positive or negative balances.[9] In recent years, a number of them have claimed a substantial share of the once US-dominated

[5]This relationship, however, is not always found to be unidimensional. Cf. Jeffrey J. Schott and Jacqueline Mazza, "Trade in Services and Developing Countries", *Economic Impact*, 1987/2.

[6]*Ibid.*

[7]See, Ronald K. Shelp, "Trade in Services, "*Foreign Policy*, Winter 1986/87.

[8]See, Sarah E. Veale, James M. Spiegelman and Ilkka Ronkainen, "Trade in services: The U.S. position", *The Fletcher Forum*, Winter 1987.

[9]Cf. J.N. Bhagwati, "Trade in Services: Developing Country Concerns", *Economic Impact*, 1988/1.

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world market for construction. Even in the more complex field of international design contracts, an increased share is being awarded to firms from Korea, Lebanon, Venezuela, Taiwan and Brazil.[10] By and large, however, most developing countries including South Asia as a region suffer from chronic and severe deficits in their services trade. Their service sector, including such infrastructural facilities as communications, transportation or financial networks is still undeveloped and some of them have not yet even entered the sophisticated, high-tech areas which are extremely capital- and R&D-intensive. Obviously, SAARC members can expect to gain immensely by not only liberalizing their intra-regional service trade but also by cooperating with each other in setting up joint venture enterprises as well as a networking of service centres.

The paper is organized as follows. Section II examines the service sector of Bangladesh particularly in its relationship with GDP. This section also provides an analysis of the service trade accounts of the South Asian region vis-a-vis the rest of the world. Section III highlights the possibilities and constraints to cooperation in the services sector amongst SAARC members, which is followed, finally, by some concluding observations in section IV.

II. Service Sector in Bangladesh

Table 1 provides the percentage contribution of the different services to the GDP of Bangladesh for selected years. It is seen that the share of the service sector, including construction and transport, is quite significant and constitutes more than 45 per cent of the country's GDP. The most important qualitative change between 1975–76 and 1985–86 can perhaps be attributed to the professional and miscellaneous service category whose contribution to GDP rose over this period from 5.7 per cent to 11 per cent. There has occurred some increase in the share of all services except for trade and housing categories which have been marked by some decline. The infrastructural facilities like construction, transport, storage and communications have remained virtually static whereas a few others such as banking and insurance and power, gas, water and sanitary services have increased significantly, although from low bases.

A more comprehensive picture of the service sector in Bangladesh can be seen from figures in Table 2 which provides, at 1972–73 constant price, values of different service categories for two selected years viz. 1981–82 and 1985–86. The table provides figures at fairly disaggregated level, showing the relative importance of different sub-categories as also of public-private ownership in banking and insurance and urban-rural distribution of housing services. It is seen that the professional and miscellaneous services cover a wide range, dominated by domestic, educational and religious services. On the other hand, facilities associated with recreational, personal and also hotel and restaurant services are found to be relatively unimportant.

[10] *Ibid.*

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TABLE 1
SHARE OF SERVICES IN GDP OF BANGLADESH AT CURRENT PRICE:

1975–76 TO1985–86.

(Percentage)

Service Sectors	1975–76	1979–80	1984–85	1985–86
Construction	5.1	4.7	5.7	5.3
Power, Gas, Water and Sanitary Services	0.2	0.3	0.6	0.6
Transport, Storage and Communications	6.2	5.8	7.2	6.8
Trade Services	10.0	9.6	8.5	8.7
Housing Services	8.3	7.9	6.9	6.5
Public Administration and Defence	2.6	2.1	4.3	4.4
Banking and Insurance	0.9	1.6	1.9	1.9
Professional and Miscellaneous Services	5.7	7.8	10.0	11.0
Total Services as % of GDP	39.0	39.8	45.1	45.2

Source: Calculated from data in Bangladesh Bank, *Economic Trends,* Monthly, June 1988.

An important field which has remained relatively undeveloped in Bangladesh and which can benefit from joint ventures is the tourism sector, although some measures have been adopted for its development in the recent past, particularly with UNDP and ILO assistance. There are a number of modern hotels and restaurants and a number of beautiful tourist spots including Chittagong, Cox's Bazar, Rangamati, Bogra, Rajshahi, Sylhet etc. Moreover, package tours including transit and sight-seeing tours are arranged by the Bangladesh Tourism Corporation which also provides duty-free shopping facilities for foreigners. The Corporation also provides training on (a) food and beverage services, (b) food production, (c) housekeeping, (d) front office and secretarial services, (e) bakery and confectionery, (f) language course, (g) tours and travel agency and tour operation and information and tourist service. However, the number of tourists is yet limited and stood at just above 1 lakh in 1987. There is a ten year Master Plan for the development of the sector, which if implemented will not only promote tourism in the country but also help towards greater regional collaboration.

Note that in spite of the growing importance of the service sector as a percentage of GDP in Bangladesh, its position, unfortunately, is very uncomfortable in the context of the country's balance of payments. As can be seen from Table 3, Bangladesh suffers from a persistent deficit in its services trade. The extent of the severity of the problem can be easily gauged from the fact that over the last few years, receipts on account of service exports have been less than half (about 40 per cent for 1987-88) of payments for corresponding imports. There are serious handicaps, particularly relating to shipment, other transportation, investment income as well as travel, although the situation is somewhat better in the case of 'other goods, services and income' category where the country enjoys a modest surplus.

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TABLE 2

CONTRIBUTION OF SERVICES TO THE GROSS DOMESTIC PRODUCT OF BANGLADESH AT CONSTANT (1972–73) PRICE

(Million taka)

Sector/Sub-Sectors	1981–82	1985–86
Construction	3004	4169
Power, gas, water and sanitary services:	296	592
(i) Power	141	375
(ii) Gas	93	151
(iii) Water and Sanitary services	62	66
Transport, storage and communication	4852	5787
(i) Land transport	2982	3585
(ii) Air transport	70	126
(iii) Water transport	1701	1845
(iv) Communication	97	229
(v) Storage	2	2
Trade services	6272	7600
Housing services:	5422	5949
(i) Urban	1199	1334
(ii) Rural	4223	4615
Public Admn. and Defence	2914	4322
(i) Central government	2812	4191
(ii) Local government	102	131
Banking and Insurance	1293	1951
(i) Banking	1150	1768
(a) Public	914	1504
(b) Private	236	264
(ii) Insurance	143	183
(a) Public	139	168
(b) Private	4	15
Professional and miscellaneous services	5225	6734
(i) Educational services	1490	1689
(ii) Medical services	410	555
(iii) Legal services	339	434
(iv) Recreation services	86	95
(v) Personal services	94	96
(vi) Hotel and Restaurant services	179	239
(vii) Religious services	905	1405
(viii) Domestic services	1722	2221
Total services	29278	37104
Gross domestic products at constant market price	72227	84482

Source: B.B.S., Statistical Yearbook of Bangladesh, 1987.

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Insofar as the other South Asian countries are concerned, Table 4 demonstrates that they all, with the exception of Nepal, have serious problems with trade in services. For example, India which was enjoying a modest surplus

TABLE 3
BANGLADESH'S TRADE IN SERVICES: 1978–79 TO 1987–88

(Taka in million)

Items	1978–79	1979–80	1982–83	1983–84	1986–87	1987–88
Services (net) (1–2)	–3,089	–4,280	–8,034	–6,930	–12,479	–13,835
1. Receipts	2,367	3,933	5,475	6,961	8,021	9,686
1.1 Shipment	—	—	—	61	68	55
1.2 Other transportation	359	543	582	640	676	846
1.3 Travel	112	159	890	738	433	303
1.4 Investment income	634	1,416	635	1,411	1,077	1,716
1.5 Other goods, services and income	1,262	1,815	3,368	4,111	5,767	6,766
2. Payments	5,456	8,213	13,509	13,891	20,500	23,521
2.1 Shipment	2,674	4,342	5,376	6,107	7,845	9,396
2.2 Other transportation	435	932	1,452	1,576	1,321	1,282
2.3 Travel	238	216	485	591	1,464	2,410
2.4 Investment income	972	1,196	3,225	3,019	4,803	5,870
2.5 Other goods, services and income	1,131	1,527	2,971	2,598	5,067	4,563

Notes: "Shipment" includes freight charges and distributive services such as loading, unloading, storage etc. on transit shipment;
"Other transportation" covers passenger services and port services via. fuel, stores, supplies and charter, hires, etc.;
"Travel" covers tourism and other travel, e.g. official, business, education, medical, pilgramage etc.;
"Investment income" includes mainly interest and discount, profit, dividend, IMF service charges etc.;
"Other Services and Income" include bank commission, agency commission, refunds and rebates etc.

Source: Bangladesh Bank, *Annual Balance of Payments,* var. issues.

on this account upto 1982 ran into a deficit amounting to more then 1.5 billion SDRs by 1987. The most serious problems related to shipment and other transportation and also the category shown as investment income. As far as Pakistan is concerned, her income from services exports could, on an average, finance over the last five years only half the country's import bills relating to services. Payments on investment income appear to be the single most important deficit item. Sri Lanka has also consistently suffered from deficits on services accounts which is largely explained by deficits on shipment and other

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TABLE 4
SOUTH ASIAN BALANCE OF SERVICES TRADE, 1980–87

(in millions of SDRs)

	1980	1981	1982	1983	1984	1985	1986	1987
Bangladesh								
Other goods, services, and income; *credit*	221.3	214.6	224.0	236.2	269.3	276.2	210.4	234.8
Shipment and other transportation	30.1	36.6	23.7	25.2	28.9	30.9	20.4	21.6
Investment income	58.6	35.2	26.1	33.7	66.5	41.3	27.1	36.4
Other official	30.6	20.7	32.5	48.9	31.3	30.2	22.7	28.4
Other	101.9	122.0	141.7	128.4	142.5	173.8	140.3	148.5
Other goods, services, and income: *debit*	–423.4	–477.0	–537.9	–489.0	–599.0	–623.4	–570.6	–505.5
Shipment and other transportation	–259.8	–265.4	–279.1	–257.6	–319.2	–308.5	–246.6	–242.9
Investment income	–53.5	–82.8	–139.6	–110.1	–132.5	–151.5	–142.7	–120.4
Other official	–28.4	–31.2	–48.5	–71.2	–78.8	–76.1	–89.0	–67.7
Other	–81.6	–97.6	–70.8	–50.1	–68.5	–87.2	–92.4	–74.5
India								
Other goods, services, and income: *credit*	2,192	3,095	3,193	3,204	3,528	3,637	3,849	3,191
Shipment and other transportation	330	371	418	437	447	528	550	493
Travel	687	1,192	1,082	1,079	1,095	720	874	983
Investment income	579	811	822	545	445	473	517	439
Other	596	720	871	1,143	1,540	1,916	1,908	1,276
Other goods, services, and income: *debit*	–2016	–2693	–3185	–3770	–4353	–4701	–5193	–4717
Shipment and other transportation	–1079	–1494	–1781	–2052	–2106	–2226	–2378	–2000
Investment income	–368	–380	–422	–613	–880	–1113	–1306	–1315
Other	–569	–819	–982	–1105	–1367	–1362	–1510	–1402

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	1980	1981	1982	1983	1984	1985	1986	1987
Pakistan								
Other goods, services, and income: *credit*	564	640	839	868	957	941	796	837
Shipment and other transportation	212	244	337	305	342	375	297	321
Other	352	396	502	564	615	566	500	516
Other goods, services, and income: *debit*	–945	–1098	–1341	–1463	–1706	–1842	–1662	–1685
Shipment and other transportation	–443	–521	–540	–550	–651	–682	–581	–563
Investment income	–274	–320	–482	–541	–646	–681	–643	–688
Other official	–110	–104	–111	–128	–115	–169	–165	–137
Other	–118	–152	–208	–244	–294	–309	–273	–296
Sri Lanka								
Other goods, services, and income: *credit*	213.8	264.9	303.1	320.1	326.3	323.4	318.7	307.2
Shipment and other transportation	33.6	42.5	53.0	64.2	67.0	72.9	79.5	88.4
Travel	76.1	98.9	116.6	96.3	99.2	81.3	70.6	55.3
Investment income	36.3	28.0	39.7	41.9	56.9	82.2	58.0	53.5
Other	67.8	95.6	93.7	117.6	103.2	86.9	110.7	110.0
Other goods, services, and income: *debit*	–325.9	–414.6	–478.7	–551.0	–561.6	–658.8	–602.0	–589.0
Shipment and other transportation	–178.8	–185.9	–204.6	–230.7	–223.8	–279.2	–255.1	–247.8
Investment income	–56.0	–109.9	–125.2	–170.0	–187.3	–206.9	–175.7	–176.7
Other	–91.2	–118.8	–148.9	–150.4	–150.5	–170.6	–171.1	–164.5
Nepal								
Other goods, services, and income: *credit*	130.3	143.8	161.2	167.3	160.2	159.2	154.4	173.5
Other goods, services, and income: *debit*	–69.7	–82.4	–79.2	–84.6	–102.0	–118.0	–100.2	–106.6

Source: IMF, *Balance of Payments Statistics,* var. issues.

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transportation. For Nepal, detailed data are not available, although clearly it is the only country in South Asia which enjoys a surplus in its balance of services trade, mainly because of its earnings on tourism sector.[11]

III. Cooperation in Services: Possibilities and Constraints

From the discussion on South Asian services trade so far it has emerged that the major countries of the region have serious problems in this regard. Looking particularly at individual items, one area which can deserve immediate attention for greater cooperation amongst SAARC members relates to shipment and other transportation. Although intra-SAARC trade data on services are not available we have reasons to suspect such flows to be relatively small vis-a-vis the rest of the world, partly for historical reasons and partly because of the non-availability of many such services within the area. However, it is noteworthy that with the exception of Bhutan, all other SAARC countries have independent shipping fleets. Even Nepal, which is not a maritime country, has also recently established its own shipping services using the facilities at the port of Calcutta in India as its base. The merchant fleet composition in the region and its tonnage in each of the five countries (other than Nepal) is given in Table 5.

TABLE 5
Merchant Fleet in South Asia, Circa 1980

	Merchant Fleet (Number)			Merchant Fleet (GRT 1000)		Gross Regd tonnage
	Steam-ships	Motor-ships	Total	Steam-ships	Motor-ships	Total
Bangladesh	12	196	208	14,615	386.439	401.05
India	67	553	720	112.443	5907.459	6019.90
Maldives	—	43	43	—	180.717	180.717
Pakistan	5	81	86	3,906	503.483	507.38
Sri Lanka	4	39	43	1,901	102.710	104.61
Total	88	912	1000	132.865	7080.808	7213.657

Source: *Lloyd's Register of Shipping,* 1981.

It is seen that the share of India in the region's gross registered tonnage is about 85.6 per cent, of Pakistan 7.2 per cent, of Bangladesh 5.7 per cent, of Sri Lanka 1.5 per cent, and of Maldives 2 per cent, although as a whole, it is to be noted that the South Asian countries have only 1.6 per cent of the Gross Registered Tonnage of the world GRT.

The national fleets of Sri Lanka, Maldives, Pakistan and Bangladesh are specialised with a greater proportion of their tonnage concentrated on general

[11]Very little information is available for Bhutan and Maldives and, therefore, no meaningful conclusions can be drawn about their positions.

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cargo vessels. The absence of tankers in the national fleets of Pakistan and to a lesser degree in the fleets of Sri Lanka, Bangladesh and Maldives makes them dependent more on general cargo. It is also observed that Sri Lanka is the only country with fully cellular container vessels in her fleet.[12] In Bangladesh, the capital intensive container berth, gantry crans, and huge big stucking area stood in the way of effective containerization.[13] Although Chittagong port has constructed two multi-purpose berths (not 100% container jetty) the facilities are meagre and inadequate. Similarly, at Mongla port no separate jetty for container with handling facilities has been constructed. Moreover, both the ports are ridden with multifarious problems like shortage of berthing facilities, shallow navigational draughts hindering passage of large vessels, lack of essential equipment and salvage dredging and other assisting vessels.[14]

Insofar as air transportation is concerned, the international passenger flights of Biman (the Bangladesh Airlines) include:

Dhaka—Calcutta	Dhaka—Doha	Rangoon—Bangkok
Chittagong —Calcutta	Dhaka—Amsterdam	Bangkok—Tokyo
Dhaka —Kathmandu	Dhaka—Kuwait	
Dhaka—London	Dhaka—Athens	
Dhaka—Dubai	Dhaka—Tripoli	*VVIP Flights*
Dhaka—Bangkok	Dhaka—Muscat	Hajj Flights
Dhaka—Karachi	Dhaka—Kualalampur	Dhaka—Baghdad
Dhaka—Abu-Dhabi	Dhaka—Rangoon	
Dhaka—Bombay	Dhaka—Dhahran	*Extra*
Bombay—Dubai	Dhaka—Rome	Bangkok—Kualalampur
Dhaka—Singapore	Bombay—Athens	Dhaka—Bahrain
Dhaka—Jeddah	Bombay—Amsterdam	Dhaka—Paris

It is seen that Bangladesh, currently, has no direct air linkages with Maldives or Sri Lanka although the Bhutanese Druk Airlines has, of late, linked up Dhaka with Thimpu on a modest scale. Note that the airlines which are operating within the region at present carry a substantial amount of cargo in addition to passenger traffic. Prospects, therefore, exist for improving this aspect of transportation

[12]See Sivanathan, S., *Report on Transport and Communication Linkages in South Asia* (A synthesis study), Marga Institute, November 1984, Mimeo.

[13]Containerization has been defined by the containerization Institute as "the utilizing, grouping or consolidating of multiple units into a larger container for more efficient movement". Under the container transportation system, the cargoes, with the bills of lading, can be transported directly from loading points to destinations without intermediate reloading and undergoing the repeated process of customs clearance and insurance documentation at various transportation points. Although shipping still constitutes the most important part of the containerization system, it is no longer the only key element in the transportation program, designed for intermodal communication between producers and consumers. See, *The Weekly Holiday* (Tradewinds), Dhaka, August 4, 1989.

[14] *Ibid.*

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which could also provide important alternative outlets to land-locked Nepal and Bhutan if better air linkages could be developed with Bangladesh.

With regard to rail transport, prior to 1965, there were three daily trains between Calcutta and Bangladesh for the through carriage of rail passengers. These were: The East Bengal Express between Sealdah and Goalanda Ghat via Gede; The East Bengal Mail, between Sealdah and Parbatipur, also via Gede; and The Barisal Express, between Sealdah and Khulna via Petropole. These trains were cancelled from 6th September 1965 after the outbreak of the Indo-Pak War, and have not been restored yet. As a result, it is not possible to make through booking for passengers by rail; passengers have to alight at border stations in each country, cross the border by walking along footpaths parallel to the railway track, and make their own arrangements to rebook themselves to their destinations. Although there are no records kept of the volume of passengers who make this difficult journey, it is estimated to be relatively small. However, it is still felt that if these inconveiences and hardships could be eliminated and through bookings restored, there would be an increasing demand for passenger services between these countries.[15] It is, therefore, suggested that Indian and Bangladesh railways should jointly work out the details for restoration of these trains.

For goods traffic, interchange facilities are available, both on broad gauge and metre gauge. If the railways of both countries agree to relax the prevailing standards of wagon examination, congestion at junction points can be resolved.

Similarly, in the field of waterways, the formulation of river conservancy measures jointly by India and Bangladesh is urgently needed over the entire river route from Calcutta onwards up to Neamati. The seasonal variations in the water level in the river are often of the order of 10 metres, going to as low as one metre during the dry season. This wide fluctuation in water level during rainy and dry seasons causes serious navigational problems due to bank erosion, siltation, instability and deterioration of channels and disruption of loading and unloading stations. Hydrographic and hydrological surveys and planning conservancy works will have to be jointly worked out by both counties.[16]

Again, there are considerable prospects for cooperative in-road transport between Bangladesh and India. There are three main road networks connecting these two countries. The first is the national highway of India (NH 34/35) from Calcutta to Dhaka, passing through the Indian border town of Petropole and Jessore in Bangladesh. The second major network is the road connecting Siliguri and Shillong in the Eastern sector of India with Dhaka via Badarpur and Agartala (NH 44), and thirdly, the road that passes between Gauhati in India and Chittagong in Bangladesh. The national highways are single all-weather carriageways conforming to the national highway standards of India. These two countries are also well connected through a number of state highways and other

[15] Sivanathan, S., *op. cit.*
[16] *Ibid.*

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minor roads. Apart from its own trade relations with India, most of Bangladesh's trade with Nepal and Bhutan has to move through India.[17] Greater accessibility to Nepal and Bhutan can be ensured by improving their road linkage with Bangladesh, albeit with some transit facilities provided by India. Note that improved road, rail, water and air transport will not only provide a boost for intra-SAARC trade but will also facilitate the growth of tourism with concomitant implication for hotel and restaurant as well as recreational and personal services. A package tour of SAARC countries may also prove an attractive proposition for which many immigration formalities need to be relaxed.

Simultaneously, there is considerable scope for cooperation in the communication side covering postal, telephone, telegraph, telex and also radio and television. Particularly, a telecommunications network is vital not only for promoting greater South Asian cohesion but also for developing a fast growing research-intensive sector.

As some of the modern service sectors have become highly sophisticated, calling for huge investments for their development, it is all the more imperative that the South Asian countries pool their resources together for R&D expenditures as well as in design and consultancy services with a view to reducing the dependency on the richer countries. Many joint venture service industries can profitably be set up in Bangladesh particularly in such areas as construction, gas, transport and communication, banking and insurance as well as a host of professional and miscellaneous services, such as, hotels and restaurants, medical and educational services etc.

The major problems of cooperation in the services trade are basically the same as the ones hindering merchandise trade. Additionally, the service sector is relatively lagging behind as an industry in most South Asian countries which means that in order to avail many such facilities one has to look to countries beyond SAARC. This is a problem which can be resolved only in the longer run context i.e. after the service sector has grown to a reasonable size in the region. The growth process itself may and need to be accelerated by setting up joint ventures and making related facilities available on easier terms within SAARC. Another major problem, however, relates to lack of information which calls for immediate information networking and, if possible, setting up a SAARC information centre in all the member countries.[18] Finally, of course, there is the problem of mutual trust within SAARC which seriously hinders greater cooperation in development and trade in services as in all other fields.

[17] *Ibid.*

[18] The CSCD has established a regional development network known as the Development Information in South Asia (DEVINSA) which is operating in all countries except Bhutan but its scope and effectiveness have remained rather limited.

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IV. Concluding Observations

The growing importance of the service sector around the world warrants greater cooperation not only for enhanced trade in services amongst SAARC members but also for plan harmonization and joint venture establishments in both traditional and new service industries. Presently the service sector appears to be relatively undeveloped, though the position in India and Pakistan is somewhat better as compared to other SAARC countries. However, the inter-country linkage within the region is quite weak and no significant cohesion is possible in the area unless stronger bonds can be developed in this regard on an urgent basis. As a step in this direction, there is great need for strengthening existing transportation and communication linkages in the region. As of now, this has remained a major hindrance to growth of intra-regional trade and also joint venture projects in both manufactures and services. Already some attempts are underway to promote functional cooperation in some of these sectors as agreed areas of SAARC's agenda (viz. transport, telecommunications and postal services). But they need to be effectively implemented on a priority basis.

It is to be noted that in the ultimate analysis any cooperative endeavour can succeed only if political relations between the countries of the region remain favourable. The present environment is definitely not conducive in this respect. The thorny issues need to be patiently handled through greater exchange of views at all levels, including the business and professional class. The current customs and immigration formalities also need to be reviewed with a view to devising means to relax cumbersome formalities. There should be no restrictions on transit facilities for land-locked countries of the region. It is imperative, finally, to have regular interaction and collaboration to develop all other traditional as well as new service sectors, which will help reduce dependence on the outside world on the one hand and at the same time provide a fillip to the growth of trade and industry in the region.

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HOW INDIA IS DOING: INDUSTRIAL GROWTH AND POLICY INTERVENTIONS IN THE 1980s[1]

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An Overview

Some time back, Prof. Amartya Sen, in his assessment of how India is doing, identified a basic dichotomy: "The strengths and weaknesses of the Indian system are clear enough. It permits endemic malnutrition and hunger that is not acute, so long as these happen quietly; it does not permit a famine both because it is too acute and because it cannot happen quietly . . . Moreover, if this recent quickening of growth rate is true, it is not in itself a great social achievement, given the 'persistent inequities', including unabated endemic malnutrition and if false, it adds little to severe indictment of Indian economy that is in any case due".[2]

In this paper, we study Indian industrial growth experience, along with various policy interventions by the state during the 1980s, in the background of planned development since the First Five Year Plan. Looking back, we find that industrial target setting, along with the use of policy variables in the economy took place within the framework of extensive planning. Since early 1950s, the objective of public policy has been the promotion of balanced and rapid economic development with equity and justice. Main question in the 1950s related to raising the rate of saving as also bring about its conversion into capital goods-mix. Another target was to raise investment rate in the economy.

The experience of the 1950s showed that the acceptance of the premise of self-reliance led to the use of import substitution measures, with a view to use 'any' amount of domestic resources to save the given amount of foreign exchange. The intuitive idea was that the production of capital goods could ensure an increase in the investment ratio in the economy, since machines could not be consumed by the people. The Mahalanobis model provided rationale for shift in industrial investment towards building up capital goods industries.

As it turned out during the 1950s, the overall effect of allocating a high level of investment to capital goods sector resulted in excess capacity and in several cases, this excess capacity also acted as a catalyst for exports. But it led to lop-sided pattern of growth. In the Mahalanobis model, intuitive belief was that the

[1]The paper was presented at 9th World Congress of International Economic Association held at Athens in 1989.

[2]Amartya Sen, How India is doing?, *New York Review of Books,* Vol. 29 (Christmas Number, 1982, pp. 41–45).

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saving rate was a reflection of behavioural features of decision making units: saving rate was a rigid function of several structural features, e.g., the capacity of domestic capital goods industry, capital-output ratio of capital goods sector and consumer goods sector.[3]

The Mahalanobis model led to significant shifts in the industrial structure. The limits of this type of strategy became obvious during 1960s when economy faced various structural constraints, e.g., food supply and balance of payments. We could also say that the experience for more than a decade since 1965 rather disproves Chakravarty's optimism that "if a country's balance of payments situation is such that it could import the necessary machines by increasing its export earnings, without depressing its terms of trade excessively, in operational terms, the need for building up a capital goods producing sector could be insignificantly obviated".[4] While there is a lot of controversy about the speed and pattern of industrial growth in India over the last three decades, now there is some consensus that during the first decade of green revolution, there was no significant acceleration in industrial growth. For industrial stagnation in the economy since 1964–65, that continued even during early 1980s, various explanations were offered. Some located the causes in periodic shocks to the economy—war in 1965 and 1971, first oil crisis in 1973 and the droughts during 1965–66, 1967 and 1971–72, that reduced the demand for industrial goods from agricultural sector and also reduced the supply of raw materials. Also there were various supply constraints as observed in the late 1960s, e.g. bottlenecks of infrastructure (transport, power and other services). Since industrial growth till mid-1960s was subject to various supply constraints, it was natural to think in terms of 'supply' constrained models e.g. savings, foreign exchange, agricultural output, etc.

What is more important here is, not cyclical fluctuations in industrial growth, but consistently 'low' rate of industrial growth for more than two decades. The rate came down from 9 p.c. in 1960–65 to 3.7 in 1965–70, as well as 1970–75. For such deceleration, we have to took for several factors. Table 1 shows sectoral growth rates of industrial output for 1951–79 period.

Hence from 1965 onwards, there was severe decline in the rate of industrial growth that led to stagnation of industrial output during 1970s. Moreover, rates of domestic saving, growth and investment did not show any marked increase. Also there was very little structural change observed in the economy. This relative stagnation was accompanied by rapid increase in prices across sectors. With 1961–62 as the base, all commodity wholesale price index went up from 94.4 in 1951–52 to 122.5 in 1964–65.

But the evidence for the 1970s and 1980s is different, since the official index of industrial production (base 1970–71 = 100) showed continuing deceleration

[3]Mahalanobis, P.C., The Approach of Operational Research to Planning in India, *Sankhya*, Dec. 1955, pp. 3–130.

[4]Chakravarty, S., On the Question of Home Market and Prospects for Indian Growth, *Economic and Political Weekly*, Special Number 1979, p. 1229.

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TABLE 1
SECTORAL GROWTH RATES OF INDUSTRIAL OUTPUT

(per cent per year)

	1951–55	1955–60	1960–65	1965–70	1970–75	1975–79
General Index	5.7	7.2	9.0	3.7	3.7	5.7
Capital Goods	15.1	13.7	19.7	–1.9	5.1	5.9
Intermediate goods	6.4	6.3	7.0	2.6	2.7	5.5
Non-durable consumer goods	3.7	3.8	3.9	2.9	1.8	5.6
Durable consumer goods	12.3	25.7	10.9	8.6	2.4	8.5
Agriculture based	3.6	3.7	3.9	1.7	1.4	3.9
Metal based	10.9	14.0	18.6	0.5	4..6	6.7
Chemical Based	8.1	9.7	9.2	9.7	5.2	9.2
Transport equipment	11.1	10.5	14.2	2.6	3.0	3.7
Electricity etc.	8.6	16.0	14.6	11.9	5.7	10.3

Source: Central Statistical Organisation (1965: 1953–58); Reserve Bank of India (1970: 992–995; 1977: 32–33, 1980: 5266–6267).

in industrial growth. Moreover, between 1966 and 1975, the rate of growth of index declined to 4 p.c. Looking at the data for manufacturing, there was sharp decline to 3.6 p.c. during 1966–75 and 4.7 p.c. during 1976–88 period (Table 2).

TABLE 2
RATE OF GROWTH OF THE INDEX OF INDUSTRIAL PRODUCTION

Period	Industry	Manufacturing	Mining + Quarrying	Electricity
1951–65	7.4	7.2	6.3	13.9
1966–75	4.5	3.8	3.5	9.4
1976–88	4.8	4.7	7.9	7.7

Source: Calculated from figures from Govt. of India, Ministry of Finance, *Economic Survey*, Various Issues.

Notes: Growth rates (r) in Tables 2 and 3 are calculated by fitting an equation of the form $\log Y = \log A + Bt$ where $B = \log (1 + r)$.

Since the earlier index of industrial production (with 1970–71 as its base year) did not take into consideration several structural changes in the economy, over last several years, government revised the index with a view to consider growth of industries like chemicals, gem cutting, petro-chemicals, electronics,

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along with progress of small scale sector. We look into these recent changes based on 1980 value-added shares and also the revision of national income series by CSO in Feb. 1988 (taking 1980–81 as base year). Also some major changes have been made relating to treatment of the service sector and depreciation. The index of industrial production (base 1980–81 = 100) shows growth rate of 7.6 p.c. per year for 1981–88 period as against lower rates of growth indicated by earlier indices.

Rather modest recovery in the industrial growth during the recent years was widely acknowledged, as the earlier index (with base 1970) could not capture recent trends which are highlighted for the registered manufacturing sector (Table 3).

TABLE 3

RATE OF GROWTH OF VALUE ADDED IN THE REGISTERED MANUFACTURING SECTOR (BY INDUSTRY)

Industry	1951–52 to 1964–65	1964–65 to 1974–75	1974–75 to 1987–88
Food	5.42	4.21	4.21
Beverages + tobacco	7.65	1.25	5.25
Textiles	2.73	1.97	2.75
Wood and wood products	14.6	2.25	9.35
Paper and paper products, printing	8.75	4.35	7.65
Leather and leather products except foowear	6.3	–6.65	1.25
Rubber, petroleum and coal products	14.6	6.25	11.62
Chemicals etc.	10.3	8.35	9.75
Non-metallic mineral products except petroleum	10.9	5.65	8.75
Basic metal industries	12.0	5.52	8.92
Metal products except machinery and transport equipment	10.3	2.75	5.61
Machinery except electrical machinery	23.5	5.25	16.6
Elec. machinery apparatus and appliances	17.65	10.65	14.25
Transport equipment	11.97	–3.65	4.76
Miscellaneous manufactures	12.6	4.65	10.92
Net manufactures value added	7.87	3.9	6.75

Source. Calculated from data available in Govt. of India, Central Statistical Organisation, *National Accounts Statistics,* various Issues.

Several studies also underlined that recent recovery is helped in a significant manner by the growth of small scale sector. Still it is also a fact that the recent trend rate is still short of the industrial growth observed during the 1950s and early 60s.

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Mitra suggested that under skewed income distribution pattern in agricultural sector, rising farm incomes could give rise to growth in mechanical technology. Also terms of trade could go against agricultural sector leading to fall in real level of farm incomes.

While there has been no continuous improvement in terms of trade of agriculture against industry, we find that there has been long-term upward trend in both prices received and prices paid by agriculture. The rates of growth in prices received by agriculture have been greater than in the prices paid by agriculture (both during the period 1951–52 to 1962–65 covered in Thamarajakshi's study,[5] as also during the period 1964–65 to 1974–75)

TABLE 4
SOME PRICE INDEX RATIOS, 1951–1979

Year	Agr/Mfg	Rice/Wheat	Cotton/Agr	Jute/Agr
1951	94.6	94.7	109.3	151.4
1952	87.7	94.0	109.0	108.5
1953	87.6	99.0	104.2	86.3
1954	82.1	98.1	107.3	99.2
1955	80.1	97.8	107.1	131.9
1956	82.9	97.1	170.7	116.0
1957	85.8	103.2	109.4	120.7
1958	86.0	100.4	98.4	104.0
1959	86.6	89.4	96.6	97.2
1960	83.4	107.5	101.6	141.4
1961	73.2	105.1	107.7	181.3
1962	82.8	111.2	96.1	94.4
1963	80.3	119.9	99.6	97.0
1964	89.1	101.3	89.9	95.0
1965	94.9	89.2	82.2	1116.2
1966	97.0	102.8	75.6	139.2
1967	84.6	95.2	84.7	108.9
1968	97.1	110.3	81.5	107.5
1969	102.4	96.1	84.0	118.3
1970	101.9	97.3	91.8	99.9
1971	92.7	105.6	111.4	94.9
1972	87.2	106.5	84.5	99.1
1973	97.9	121.9	83.8	80.8
1974	101.2	106.6	98.5	59.8
1975	94.4	111.2	84.5	67.9
1976	88.9	102.9	117.9	81.5
1977	96.9	104.9	115.5	83.5
1978	96.9	102.7	100.4	86.8
1979	89.7	110.4	89.9	96.1

Source: Calculated from Chandhok, H.L. (1978); Ministry of Industry (1980).

[5]Thamarajakshi, R., Terms of Trade and Marketed Surpluses of Agricultural Produce, 1951–52 to 1965–66, *Economic and Political Weekly*, 1969.

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As the series in Table 4 show, agricultural terms of trade declined in the early 1950s, improved in 1960s, worsened again in the early 1970s and were about the same at the beginning and at the end of the thirty year period. Those who believe that the farmers' lobby raised agricultural prices, should also hold that other countervailing factors also emerged during the 1970s. Moreover, now data available for the entire period covering last three decades made it possible to ensure a broader perspective of the pattern of growth and fluctuations in the economy[6] and also to replace the earlier supposition on deceleration with more plausible hypothesis, consistent with even the possibility of some improvement in overall growth since the middle of the 1970s.[7]

We could also estimate the average annual rates of growth of GDP and of gross value added in agriculture and manufacturing industry in each of the eight year periods identified (namely, 1952–53 to 1959–60, 1960–61 to 1967–68, 1968–69 to 1975–76 and 1976–77 to 1983–84). The results are shown along with year-to-year estimates in Table 5.

When the growth record of three decades is analysed in this manner, there is not only no evidence of decline in the growth rate of GDP, but one can perceive even some slight improvement in the average rate estimated for each of the sub-periods. Recently, K.N. Raj suggested that there has been possibly some increase in the rate of growth of industrial output since mid-1970s, raising it close to the level achieved in the 1950s and 1960s. "Even if rate of growth of agricultural output had declined slightly, the overall rate of growth could have increased somewhat on account of increasing weightage of the non-agricultural sector, higher rates of growth in this sector and the possibility of under-estimation of growth of output from manufacturing from mid-1970s. I would venture to place it now at not less than 4.25 p.c. p.a., certainly above the so called 'Hindu rate' of growth."[8]

On the production of foodgrains, there has been a controversy between Vaidyanathan (1977) and Srinivasan[9] (1977, 1979) and the conclusion was that growth rate of foodgrains production rose between 1950–65 and

[6]The sectorwise estimates of gross and net value added at 1960–61 prices are available for the period 1950–51 to 1970–71 in the CSO, *National Accounts Statistics,* 1960–61 to 1972–73, Disaggregated Tables, March 1975. For recent data see CSO, *New Series on National Accounts Statistics* with 1980–81 as base year, 1980–81 to 1985–86 (Feb. 1988).

For critical exposition of New Series, see Uma Datta, Roy Choudhury, *Economic and Political Weekly,* 23 July 1988.

[7]See here Raj, K.N., Some Observations on Economic Growth in India over the period 1952–53 to 1982–83, *Economic and Political Weekly,* 13 Oct., 1984, p. 1801.

[8]Raj, K.N., op. cit., 1984, p. 1802.

[9]Vaidyanathan, A., Constraints on Growth and Policy Options, *Economic and Political Weekly,* 1977.

———, Performance and Prospects of Crop Production in India, *Economic and Political Weekly,* 1977.

Srinivasan, T.N., Constraints on Growth and Resource Options, *Economic and Political Weekly,* 1978.

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TABLE 5

PERCENTAGE INCREASES IN GDP AND IN GROSS VALUE ADDED IN AGRICULTURE AND ALLIED ACTIVITIES AND IN MANUFACTURE (ESTIMATED AT FACTOR COST AND AT CONSTANT PRICES)

	Gross Value Added		
	Agriculture and allied activities	Manufacturing (in registered and unregistered enterprises)	
	(at 1960–61 prices upto 1970–71 and at 1970–71 prices from then on)		
1951–52	1.98	1.64	—
1952–53	3.54	5.47	2.80
1953–54	6.32	8.09	7.10
1954–55	2.77	0.29	7.78
1955–56	3.15	–0.18	8.18
1956–57	5.48	5.00	8.04
1957–58	–1.74	–5.13	1.03
1958–59	8.48	11.17	1.44
1959–60	1.83	–1.71	6.88
Average (1952–53 to 1959–60)	3.73	2.87	5.78
1960–61	6.86	6.10	8.72
1961–62	3.55	0.84	9.58
1962–63	2.13	–2.48	9.84
1963–64	5.10	2.67	8.21
1964–65	7.88	9.19	7.89
1965–66	–5.21	–14.29	1.25
1966–67	0.97	–1.77	–1.34
Average (1960–61 to 1967–68)	3.75	2.17	5.74
1968–69	2.70	1.36	4.28
1969–70	6.34	6.39	10.70
1970–71	5.56	7.75	3.50
1971–72	1.57	–0.70	2.76
1972–73	–1.08	–6.36	4.16
1973–74	4.70	7.72	4.85
1974–75	0.86	–2.14	2.35
1975–76	9.45	13.18	2.15
Average (1968–69 to 1975–76)	3.76	3.40	4.34
1976–77	0.76	–6.59	8.81
1977–78	8.81	12.63	6.48
1978–79	5.75	2.86	11.10
1979–80	–5.27	–13.27	–1.85
1980–81	7.84	12.82	1.69
1981–82	5.35	3.34	5.11
1982–83	1.80	3.00	3.90
1983–84	7.00	9.00	4.80
Average (1976–77 to 1983–84)	4.01	2.22	5.00

Source : K.N. Raj, op. cit. Data from Central Statistical Organisation, National Accounts Statistics. For gross value added in agriculture and manufacturing from 1951–52 to 1970–71 at 1960–61 prices, see the Disaggregated Table, published along with the series for 1960–61 to 1972–73 in March 1975.

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1966–1978 and fell between the 1st period and 1967–68/1977–78 and the difference in either case was statistically insignificant. We find per capita foodgrain output was 5 per cent higher in 1966–1978 and 9 per cent higher in 1968–1978 than it was in 1950–65, but the year-to-year fluctuations were such that the increase was not statistically significant.

Now we can say that over the 35 year period 1954–88, per capita gross consumption of foodgrains has remained unchanged at about 190 kg per year and all that the green revolution has done in this respect is to relieve India from the burden of partial dependence on imports for domestic food supply.[10] This is not because per capita output has not risen, but because output rose rapidly enough, not only to replace imports, but also to occasion a shift in terms of trade against agriculture in the 1970s.

The fact is that the green revolution era has not seen any perceptible expansion in per capita foodgrains consumption. To put it differently, the 'subsistence fund', on which classical economists put so much emphasis as a means for capital accumulation, did not record any noteworthy rise on a per capita basis.[11]

Income Distribution and Demand Factor

The evidence based on NSS data showed that real income of the poor declined, but the consumption of luxury goods grows faster than that of necessity. Bagchi, Mitra and K.N. Raj made out the case based on consumer demand and income distribution as possible factors for stagnation. The linkages of industrial sector to rest the economy are so strong that overall performance of the economy is determined by its growth. Raj made the point that the regions showing moderately high and stable rates of agricultural growth, have also experienced high growth rate in industry. While looking at the aggregate demand pattern, income distribution is very crucial, as it determines the consumer expenditure pattern and consumption of industrial output. Bagchi[12] premise here is as follows: the existing unequal income distribution gets support from process of growth, since the private sector appropriates increments to income. Bagchi also argued that the failure of the capitalist class to sustain high rates of saving was the basic cause of 'low' industrial growth. This low growth made it vulnerable to (i) faltering of demand in particular sectors, (ii) fluctuations in agricultural output, (iii) fluctuations in the availability of foreign exchange.

[10]Dandekar, V.M., Agriculture, Employment and Poverty, *Economic and Political Weekly*, Sep. 20, 1986.

[11]See here Sau, Ranjit, The Green Revolution and Industrial Growth in India: A tale of two paradoxes and a half, *Economic and Political Weekly*, 16th April, 1988.

[12]Bagchi, A.K., Long-term Constraints on India's Industrial Growth 1951–68, in Robinson and Kidron (ed.), *Economic Development in South Asia*, 1970.

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In the Indian case, the rate of growth of industrial production could not occur on a sustained basis, because neither the home market nor foreign market could absorb them and narrow demand base proved a major constraint.

Ahluwalia[13] fitted trend equations to indexes of poverty for the country and for the states from 1956–57 to 1973–74: the proportion of people with real consumption level below Rs. 15/- per head at 1960–61 prices and the Sen index of relative inequality. He found no trend in either index for India as a whole. Ahluwalia also showed that growth of agricultural productivity is associated with reduction in the proportion of poor as well as relative inequality, but this conclusion goes against Lewis model that would lead us to expect that a rise in the productivity in a labour-surplus economy would accrue to profits.

Another implication of the Lewis model that the overall saving ratio should increase, was borne out in the 1970s. This does not establish its validity, but Chakravarty's (1974) explanation of its failure is both unnecessary and depends on the fiction of terms of trade turning in favour of agriculture.

What has happened to per capita NDP in the agricultural sector during the three decades 1954–83? It has remained unchanged at about Rs. 415 at 1970–71 prices per year over the cycle of good and bad harvest years. In fact, it dropped a little to Rs. 400 during the early days of green revolution 1968–75.[14]

The Level of Investment in the Economy

During the decade 1955–65, real investment in the economy increased sharply, but the later stagnation was responsible for decline in the growth of capital goods industry.[15] The increase in real investment fell from the average of 8 p.c. between 1960–66 to less than 2 p.c. for the next several years. The share of gross domestic capital formation in GDP, which had a peak level of 19.7 p.c. in 1966–67, fluctuated around average level of 17 p.c. over the period 1966–67 to 1974–75.[16]

But given the small fraction of total GDP derived from these activities, their slowdown is unlikely to have been a significant factor in deceleration. This slackening of the base of new investment is likely to have had much bigger impact on overall growth by slowing down the rate of addition to productive capacity.[17] Moreover, the growth rate of total GDP fell from 3.9 p.c. in the 1950s to 3.5 p.c. in the 1960s. The fall was greater in public investment and this led Srinivasan to conclude that a fall in public investment was the main cause for

[13]Ahluwalia, M.S., Rural Poverty and Agricultural Performance in India, *Journal of Development Studies*, 1978.

[14]Dandekar, V.M., op. cit., 1986, Table 5.

[15]Srinivasan, T.N. and N.S. Narayana, Economic Performance since the Third Plan and its Implication for Policy, *Economic and Political Weekly*, 1977, pp. 225–239.

[16]Government of India, *National Account Statistics*, 1960–61 to 1974–75, CSO, New Delhi, 1976, p. 30.

[17]Vaidyanathan, A., op. cit., p. 1643.

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deceleration. Hence to overcome this crisis there should be vigorous increase in public investment.

Patnaik[18] and Rao gave explanation in terms of the circumstances leading to a decrease in public investment and the loss of stimulus for private investment. Really, import substitution was just a temporary stimulus that lasted so long as the domestic market was available. So the level of investment stagnated, since the government failed to mobilize resources for public sector. Now more recent data showed the hiatus in the machinery purchases to have been short-lived. In the late 1960s, share of investment in machinery to GNP was slightly lower than in the early 1960s. In the 1970s, it rose to ever higher level, until it reached 10.3 p.c. in 1978–79 when industrial value added was 22 p.c. of GNP.

Really the growth deceleration in capital-goods industries was more strongly linked to a deceleration in public investment. The recent rise in public investment was facilitated by large transfers of household sector savings through growth of public financial intermediation by banks and insurance companies and by recent rise in the prices of petroleum and other public sector products. Really the rate of growth in private investment moved in sympathy with that in public investment. Recent econometric study of the time series data (from 1951–52 to 1980–81) on investment suggests that the stimulation effect of public investment on private corporate investment tends to dominate any possible negative effect through competing for investible funds. The elasticity of private corporate investment with respect to public investment (of the previous year) is estimated to be as high as 0.73.[19]

High Capital-Output Ratios

While international comparisons of ICOR are tricky by international standards, they have been generally high in India. While the productivity growth in the Indian economy was 1.8 p.c. between 1950–51 and 1970–71, the total growth rate was 3.7 p.c. So during the past two decades of planning, India obtained about 50 p.c. of its contribution to growth from productivity growth, but between 1970–71 and 1980–81, the productivity growth rate was nil.[20] The capital-output ratio was 2.8 : 1 during 1950–51 and 1960–61. In the following 10 years, it went up to 9 and during 1970–71 to 1980–81, ICOR went up to 6.2. In public utilities (power and railways), it was never below 15 and after mid-1960s, it was about 20 while the unit input cost per unit of output in the economy rose from an index of 100 in 1950–51 to 139 in 1970–71 and to 196

[18]Patnaik, P. and S.K. Rao, 1975–76, Beginning of the End of the Stagnation, *Social Scientist,* 1977, pp. 120–138.

[19]See here Bardhan, Pranab, *The Political Economy of Development in India,* Blackwell, 1984, Ch. 4.

[20]See here Brahmananda, P.R., *Productivity in the Indian Economy: Rising inputs and failling output,* Bombay, 1982.

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in 1981. So the relative share of material and depreciation costs per unit of output have doubled over the last thee decades.

Hence we can say that excessive private investment in luxury consumer goods led to excess capacity and high capital intensity. The capital costs of public sector steel plants, fertilizers, aluminium were generally higher than those of private sector and this was due to their higher social responsibilities. The average capital-output ratios in government and public limited companies are shown in Table 6. Brahmananda observed that in the commercial sector of the economy, productivity growth rate during 1970–71 to 1980–81 has been slightly negative. In the first decade 1950–51 to 1960–61, of the 14 sectors, more than 12 had positive and high productivity growth. But between 1970–71 and 1980–81, 12 sectors out of 14 showed negative productivity growth. This also shows why despite rise in the savings-income ratio from 8 p.c. in 1950–51 to 19 p.c. in 1980–81, we still find the growth rate hovering around 3.5 p.c.

Recently K.N. Raj suggested that the most important factor for apparent increase in ICOR is that while the prices of commodities and services going into fixed capital formation rose at the same rate as prices of commodities and services going into GDP (as reflected in the respective CSO deflators), from the middle of the 1950s, upto the middle of the 1970s, the former have risen much more rapidly since then.[21] The Working Group appointed by Government of India, after looking into available estimates observed: even though the rate of gross capital formation in the economy would appear to have risen by about 2.5 times over the quarter of century (from about 10 p.c. of GDP in the mid-1950s to about 2 p.c. by the end of the 1970s), the order of increase has been much lower when year-to-year fluctuations are smoothened out. The rate of gross fixed capital formation in closing years of the 1970s (about 18 p.c. of GDP) turns out to be no higher than in the middle of the 1960s and only about two-thirds higher than in the middle of the 1950s (when it was 11 p.c. of GDP).[22]

Recent disaggregated industry groupwise study[23] also suggested that rise in capital-output ratio characterizes almost all of the industry groups individually and is not just the outcome of a change in the composition of the aggregate industrial sector. Really the available evidence showed that the contribution to the rise in the ICOR from across-the-board increases in individual industry groups dominates that from the change in the industrial output-mix.

However the rising ICORs are not simply due to shifts in the pattern of industrial investment; there was also an implicit suggestion that they are not really important. The relative share of energy sector in the total public sector outlay has in fact risen sharply over the last decade from around 11 p.c. in the

[21]Raj, K.N., op. cit., 1984.

[22]*Capital Formation and Saving in India,* 1950–51 to 1979–80 (Report of the Working Group on Savings, appointed by Department of Statistics, Ministry of Planning, Govt. of India), published by Reserve Bank of India, Feb. 1982, p. 44.

[23]Ahluwalia, Isher Judge, *Industrial Growth in India, Stagnation since the mid-sixties,* 1985, O.U.P.

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TABLE 6

AVERAGE CAPITAL-OUTPUT RATIOS IN GOVERNMENT AND IN PUBLIC LIMITED COMPANIES, 1960–61 TO 1975–76

	Government				Public Ltd. Company			
	1960–61	1965–66	1970–71	1975–76	1960–61	1965–66	1970–71	1975–76
1	2	3	4	5	6	7	8	9
Agriculture + allied activities	—	—	—	—	2.70	2.91	2.22	1.67
Mining and quarrying	—	3.01	7.42	3.40	1.94	1.80	1.74	1.26
Processing + manufactured foodstuffs, textiles, tobacco, leather, etc.	—	—	—	—	2.65	2.84	2.73	2.31
Processing and manufactured engineering metals, chemicals, etc.	—	5.91	7.77	7.72	3.98	3.68	3.84	3.31
Engineering	3.55	3.20	5.64	3.22	2.71	2.73	2.96	2.60
Transport equipment	—	—	—	—	3.04	3.35	3.65	3.46
Electrical machinery	—	—	—	—	2.35	2.43	2.37	2.11
Non-electrical machinery	—	—	—	—	2.46	2.88	2.42	2.12
Foundries and engineering workshop,	—	—	—	—	2.07	2.26	4.70	4.67
Ferrous/non-ferrous metal producs	—	—	—	—	3.30	2.98	2.94	2.72
Chemicals	7.47	3.00	12.25	14.48	4.02	4.23	4.44	3.95
Processing and manufacturing not also where specified	—	—	—	—	5.52	5.15	4.66	3.59
Cement	—	—	—	—	6.16	5.84	10.48	4.91
Other industries	—	12.92	8.32	9.02	5.16	4.85	4.77	5.58
Construction	—	—	—	—	1.54	1.53	1.88	1.77
Electricity generation and supply	—	—	—	—	16.19	14.95	13.39	12.89
Miscellaneous	—	1.72	6.34	6.71	—	—	—	—

Source: RBI (1963, 1967, 1968, 1973, 1975, 1979, 1980).

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First and Second Plan Period to between 17 and 20 p.c. in the Third and Fourth Plan periods and 30 p.c. in the Sixth Plan period.

In the economy, where domestic market is so crucial, steady industrial growth requires increasing mass consumer demands. Even accelerated investment in the private sector could not have sustained vigorous industrial growth. Even in the 1970s, dependence on domestic markets was the result of earlier import substitution strategy that made the dependence of industry on the level of capital formation in the economy all the more vulnerable.[24] The import substitution pursued through various tariff measures also reinforced the domestic demand. Hence growth in industrial production was sustained by high level of investment and various measures of intervention by the Government.

The New Economic Policy and the 1980s Recovery

In view of several important shifts in economic policy during the 1980s, it is crucial to see now the economy responded to these policy interventions. There has been a recovery in the rate of growth of industry during the 1980s, in spite of decline in the agricultural sector. Table 7 shows various changes in the GDP estimates for 1980–81, following old and new methods. There is 7.5 p.c. increase in GDP, but there is no overall upward revision of annual growth rates due to adoption of new series.

While the agricultural sector showed compound annual growth rate of 1.5 p.c. only, there were negative growth rates in three out of six years and positive growth rates in two years (between 1980–81 and 1981–82 and between 1982–83 and 1983–84). The *Economic Survey* in 1987–88 observed that fall in agricultural product in 1987–88 over 1986–87 was about 7 to 10 p.c. Hence the most disturbing aspect of the 1980s is the poor performance of agricultural sector from 1983–84 onwards. The *Mid-term Appraisal* of the 7th Plan also warned that "the decline in foodgrain production from the peak levels attained in 1983–84 is a cause for concern. Adverse weather, particularly in the current year, is partly responsible for this. But a part of the problem is also slow-down in the spread of the HYV area in fertiliser consumption and in addition to net irrigated area. The attainability of the growth target for the 7th Plan depends crucially on determined efforts to reverse these trends.[25] Hence the recovery during the 1980s underlines break in the linkage between agriculture and industry and stimulation really came, not from public sector units, but rather from the service sector that showed significant growth in the 1980s. Its share in NDP shot up from 36 p.c. in 1980–81 to 39 p.c. and it was observed both by V.K.R.V. Rao and Sundrum. To Rao, the share of tertiary sector in NDP went up from 26.62 p.c. in 1950–51 to 38.88 p.c. in 1979–80. The growth rate of NDP rose in the third decade also and "this is entirely due to rise in the growth rate

[24]See here Tandon, Rameshwar and Neelambar Hatti, *Exports and Development: The Indian experience,* Ashish Publishers, New Delhi, 1987, Ch. 9.

[25]Planning Commission, *Seventh Five Year Plan 1985–90: Mid-term appraisal.*

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of tertiary sector that was high enough to offset the fall in the growth rates of the secondary and primary sectors".[26]

TABLE 7

ESTIMATES OF GROSS DOMESTIC PRODUCT AT FACTOR COST BY KIND OF ECONOMIC ACTIVITIES, 1980–81, ACCORDING TO OLD AND NEW SERIES

Economic Activity	Old series	New series	Difference
1	2	3	4
1. Agriculture, forestry and fishing	42788	46479	3691
1.1 Agriculture	40838	42466	1628
1.2 Forestry + logging	1041	3092	2052
1.3 Fishing	909	921	12
2. Mining + quarrying	1843	1887	44
3. Manufacturing	18963	21644	2681
3.1 Registered	12306	12281	–25
3.2 Unregistered	6657	9363	2706
4. Electricity, gas + water supply	1970	1989	19
5. Construction	5671	6114	443
6. Trade, hotels + restaurants	17023	14713	–2310
6.1 Trade	15837	13839	–1998
6.2 Hotels + restaurants	1186	874	–312
7. Transport, storage + communication	6238	5724	–514
7.1 Railways	1124	1124	—
7.2 Transport by other means	4167	3680	–487
7.3 Storage	157	122	–35
7.4 Communication	790	798	8
8. Financing, insurance, real estate + business services	7860	10841	2981
8.1 Banking + insurance	3461	3458	–3
8.2 Real estate, ownership of dwellings + business services	4399	7383	2984
9. Community services, social + personal	11192	12835	1643
9.1 Pub. admn. + defence	5414	5794	380
9.2 Other services	5778	7041	1263
10. Total gross domestic product at factor cost	113548	122226	8678

Source: CSO, *New Series on National Accounts Statistics* with 1980–81 as Base Year (Feb. 1988), Table 3.

But Sundrum in a rather exotic manner calculated, for each of three decades between 1951–52 and 1981–82, the sectoral contributions to the increase in GDP. While during 1951–52 to 1961–62, GDP increased by Rs. 8,347 crores in 1970–71 prices and contribution of agriculture was 38.3 p.c., of industry 28.5 p.c. and of services 33.2. In the next decade, share of agriculture in the rise in

[26]Rao, V.K.R.V., *India's National Income 1950–80: An analysis of economic growth and change,* Sage Publications, New Delhi, 1983.

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GDP of Rs. 10,660 crores was 30 p.c., of industry 29.7 p.c. and of services 40.3 p.c. In the third decade, 1971–72 to 1981–82, out of GDP increase of Rs. 15,742 crores, agriculture share was 23.7 p.c., of industry 24.4 p.c. and of services 51.9 p.c.[27]

A new Industrial Policy statement was issued in July 1980 by the government and during the past few years, several policy measures have been adopted with a view to give greater buoyancy to private sector,[28] e.g., dismantling controls over prices, production, capacity creation, foreign collaboration, as also by opening up areas reserved for private sector. The Sixth Plan document also claimed for several "directional" changes in the industrial policy: "This accords particular emphasis on improving efficiency and productivity in the industrial sector through optimum utilization of existing capacity. To this end, it is proposed to grant recognition to increased capacities arising from technical improvements and labour productivity, by endorsing industrial licenses selectively on basis of such capacities and to permit automatic growth in industry in which core sector or those which have a direct linkage with core sector or with long-term exports.[29]

All these directional changes were considered necessary to remove the lingering constraints to industrial production and also act as catalysts for faster growth. Moreover, the Sixth Plan envisaged average annual rate of growth of industrial production of 7 p.c. during the plan period. In March 1985, Government announced delicencing of 25 broad categories of industries and 85 bulk drugs were also added. Also definition of MRTP was changed to cover only those units with assets of Rs. 100 crores and above, as compared with Rs. 20 crores earlier. Then in May 1985, M.R.T.P. companies were exempted in 27 industries from sections 21 and 33 of the Act allowing them to seek directly licence under the IDRA. Then in December 1985, delicencing was extended to 22 of these 27 industries, provided these units were located in 'backward' areas. Some more changes were brought about recently, e.g., broad-banding of several industry groups (at present 29), with a view to diversify in the production of similar products without new licences (e.g. synthetic fibres), simplified procedure for cases where modernization or renovation leads to increase in capacity by upto 49 p.c. of original licence, expansion of (for 30 industry groups) the list of Appendix I industries where MRTP and FERA companies are allowed to set up capacities, a modified capacity endorsement scheme, for units achieving 80 p.c. capacity utilization during any one of the five years preceding March 1985, liberalized conditions allowing FERA and MRTP companies to set up non-Appendix I industries. The companies (dominant undertakings) were freed from industrial licencing policy restrictions, thus reducing by 69 total of about 1730 corporate units under the MRTP. Also the lower

[27]See here Sundrum, R.M. *Growth and Income Distribution in India: Policy and performance since independence,* New Delhi, Sage, 1987, p. 108.
[28]For more details, see here Centre for Monitoring Indian Economy, *The Liberalization Process,* July 1986.
[29]Planning Commission, *Sixth Five Year Plan 1980–85,* p. 262.

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bound for investment to be licensed in regulated industries was raised from Rs. 5 crores to Rs. 15 crores in non-backward areas and .50 crore in backward areas.

After the Sixth Plan was over, RBI study of trends in industrial production was very revealing for continuing deceleration in growth of output during successive plans. While due to new economic policy, the orientation of industrial structure was towards production of luxury consumer durables, this study noted that the average annual rate of growth of industrial output was 5.5 p.c. and significantly fell short of the revised Sixth Plan target of 7 p.c., the target originally envisaged being 8 p.c. This growth rate has also been marginally lower than trend growth rate of 5.8 p.c. per annum registered during the period 1951 to 1971, as also the Fifth Plan (1974–79) growth rate of 6.1 p.c. which in itself was sluggish in relation to planned rate of 7 p.c.[30]

Really lack-lustre performance of industries is not peculiar to Sixth Plan. In the earlier plans also, industrial growth has been lower than the target. And during the Sixth Plan period, while mining and quarrying showed growth of 10 p.c., electricity and manufacturing sector at 8.4 and 4.5 p.c. but short of targets of 11 p.c. and 8 p.c.

Moreover, following use-based classification, there was decline in all the major sub-groups. In the basic goods sector, fertilizers, organic chemicals, iron and steel, electricity, as also various consumer goods and capital goods industries showed lower growth rates. But in consumer durables, there was sharp improvement in the production of motor cars and motor cycles, but decline in case of fans, telecommunications and office equipments (Table 8).

Looking back, we can say that the growth rate during the 1980s is much higher than the trend growth rate of 6 p.c. in the earlier three decades. The sectoral growth profile reveals improvement in growth performance during 1980–81 to 1986–87, as compared to 1971–72 to 1979–80 in all sectors, e.g., mining, manufacturing and electricity generation.

While the New economic policy pursued during the 1980s is based on the premise that it is the demand for consumer durables of the top two deciles of population, which will provide stimulus for overall growth of the economy and so problems facing the economy are deeply involved on the 'supply' side rather than on the 'demand' side. The *Economic Survey*, 1986–87, also claimed that the Indian economy is now on a new growth path. In this scenario, the industrial sector should emerge as a resilient and dynamic sector of the economy.

Now when the decade of 1980s has one more year to go, we make some final observations here: while various structural changes have been observed in the economy during the 1980s, now the industrial economy has become less and less sensitive to performance of agricultural sector. Over the years, there has been persistent dilution of government intervention, partly due to the emerging resource crisis. It is rather too early to say whether the industry has

[30] *Reserve Bank of India Bulletin*, Trends in Industrial Production during the Sixth Five Year Plan: A review, May 1986.

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TABLE 8
INDUSTRIAL PRODUCTION: RATES OF GROWTH

	Major Groups				Input-based Classification		
	General Index 100.00	Mining + Quarrying 9.69	Electricity 9.23	Manufacturing 81.08	Agro-based 33.68	Metal based 21.93	Chemical based 12.86
1	2	3	4	5	6	7	8
Fifth Plan average 1974–79	6.1	6.2	9.9	5.7	3.9	5.9	7.9
1979–80	–1.4	0.7	2.1	–2.1	–3.8	–1.0	–0.4
1980–81	4.0	4.3	5.8	3.7	6.0	4.1	1.7
1981–82	8.6	15.8	10.2	7.5	6.1	5.7	13.4
1982–83	3.9	10.8	7.1	2.5	2.7	–1.0	3.1
1983–84	5.5	11.5	6.8	4.5	1.9	8.6	5.5
1984–85	5.6	8.4	11.4	4.1	2.0	4.4	7.8
Sixth Plan average	5.5	10.2	8.3	4.5	3.7	4.4	6.3

Source: *Reserve Bank of India Bulletin*, May 1986, Trends in Industrial Production during the Sixth Five Year Plan: A Review, from Table 1.

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responded to these changes; whether it will be possible to raise the growth rate of industry on fairly sustained basis. In the Approach to the Fifth Plan (1974–79), it was underlined that the luxury goods[31] sector must not be allowed to grow fast, but the about-turn in the new policies has disturbing implications due to elitist orientation of various policies and just possible that it may lead to "immiserisation" of the poor, unless countervailing measures are taken.[32]

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[31]See here Chakravarty, S., *Development Planning: The Indian Experience,* Oxford: Clarendon Press, 1987.

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[32]See here Sau, Ranjit, The Green Revolution and Industrial Growth in India: A tale of two paradoxes and a half, *Economic and Political Weekly,* 16th April, 1988.

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BOOK REVIEW

FOREIGN AID AND INDIAN DEVELOPMENT

By K.C. ROY, Peace Research Centre, Gujrat Vidyapith, Ahmedabad, 1986; pp. xii + 139; price Rs. 115/-.

Reviewed by DR. RAJ KUMAR SEN, Rabindra Bharati University, Calcutta.

The present volume has been described as a study from the view point of peace and development with particular reference to the first three Five Year Plans of India. The author has tried to analyse whether the economic development achieved during 1951 to 1966 manifested itself in any genuine improvement in the welfare of the poor, besides registering a certain increase in the rate of growth of GNP. Though India has completed four additional Five Year Plans since 1966, yet the basic conclusions appear to remain still relevant and it is also corroborated by the recent approach to the Eighth Five Year Plan where the requirement for a change in the planning outlook and strategies have been emphasised. The book focuses particularly on the role of foreign aid in India's development.

Distributed over eight chapters, this book deals with the concept of peace, non-violence and development in a changing world and analyses the relationship between aid and development. The actual contribution of aid by the donors and India's performance as aid receiver, cost of aid and burden of debt repayment and the impact of aid are the major issues of discussion which constitutes the main body of this volume. The book ends with a detailed review of Indian development from the viewpoint of tension and violence and suggestions towards a new approach to planning. It also contains a forword by Ramlal Parikh, Vice-Chancellor of Gujrat Vidyapith.

The present study does not follow the traditional pattern of analysis relating aid with development. Being interdisciplinary in character, it tries to analyse contemporary problems in their inter-connected dimensions. The pattern of India's economic development was emulated from the West and naturally foreign aid formed a significant part of total available resources of her Five Year Plans. But as the source-tied aid formed overwhelmingly major share of the total aid in the first three plans, it reduced greatly the recipient's freedom of choice and protected the exports of donor and ultimately not only unduly increased her foreign debt burden but also undermined the country's sovereignty. It is really shocking to know that in a country like India where still the majority of the people are dependent on agriculture, this sector received

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only 1.4, nil and 2.6 per cent of total foreign loans in the first three Plans respectively.

A basic feature of this book is the interpretation of economic events in terms of Gandhian ideology. While Indian planning neglected the economic prescriptions of Gandhi in its initial stage, gradually an awareness is growing to realise the importance of the basic tenets of his theory. Perhaps it is for the first time when we can identify an undercurrent of Gandhian philosophy in the approach paper of the Eighth Plan. At least three sections of this book are devoted to discuss Gandhi's plan for non-violent development, his concept of the 'last man' in the context of aid's effect on development and the Gandhian goal of planning in addition to many other references to this philosophy throughout the book. In the context of the failure of current Plan strategies to remove poverty and growth process leading to environmental hazards and ecological imbalances, this approach assumes additional significance and deserves special attention from policymakers in developing economies like India.

It has been also noted that peace cannot be achieved unless poverty and misery of masses in the developing world are removed. At the same time, the volume of foreign aid, its pattern, characteristics, costs and burden experienced in the Indian planning process have been analysed and it has been concluded that the economic benefits of aid in real terms were much smaller than its costs particularly when they are evaluated in the context of employment creation, efficient development of public sector, growth of small scale and village industries and alleviation of mass poverty. The effects of aid on many other LDCs are also discussed briefly and the experiences of various features of maldevelopment in India and other countries have prompted the need to develop a new approach to planning along Gandhian lines. The new role of foreign aid in this new perspective is discussed with an ultimate aim to establish a nonpoverty society.

While the conclusions and prescriptions of this novel study may not be easily acceptable to the followers of conventional development theories, the book no doubt merits serious thinking when everybody feels the urgent necessity to adopt a new development strategy for the developing world including India.

The cover, printing and paper of the book may be qualitatively improved in the next edition. The price of a university publication like this, however, appears to be on the high side.

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POVERTY ALLEVIATION PROGRAMME UNDER THE PLANS

By CHANDRAPRAKASH SINGH, Indus Publishing Company, New Delhi, 1989, pp. 212.

Reviewed by N. RAJASEKARAN, ISEC, Bangalore 72.

As A. K. Sen (1981) points out in his 'Poverty and Famine' there are two categories of people in the clutches of poverty. One category does not have the ability to generate more income while another group does have the ability to enhance its economic condition but does not endeavour. In the first category, people are willing to work and endeavour to better off their material well being but they are not able to do so because of lack of ability to command resources. In the second category people have the economic potentialities but they do not attempt even to improve their income level because they do not want to work and if at all they are ready to take up work they are very choosy in job to the level of their social status (caste, religion) which they enjoyed once upon a time. Here is the rub to bring the second category above poverty line.

Keeping these categories of people in mind, a number of poverty alleviation (not eradication) programmes like IRDP and RLEGP have been engineered. While the former (IRDP) concentrates on asset creation and self-employment, the latter generates more employment opportunities in the rural areas during slack agricultural seasons. Even with all these well-formulated programmes the condition of unfortunate and importunate ones has not made any strides. Now the questions emerge are:

1. Why is it that poverty level does not come down and whether the concept of poverty alleviation has to be changed into eradication.
2. Whether the existing social structure does not permit the people to come out of the circle.

A plethora of research works have been undertaken mainly to probe into the above issues. Noted development economists like Bardhan, Sen, Ahluvalia, V.M. Rao, Hirway have attempted to conceptualise the development process and established theories like trickle-down, entitlement, vertical-horizontal linkages and central periphery. They have come out with sound theoretical and empirical contributions to this field. This field has become very flourishing. So there is need to bring together all the works and make then available at one place.

This has been partially fulfilled by this book which is under review. This study has attempted to examine or group the past studies which have concentrated on the impact of poverty alleviation programmes to pin-point the areas of success and failure. This book has been organised into seven chapters. While the first two chapters deal with the concepts of poverty issues related to poverty line and the nature of poverty in India, the succeeding three chapters discuss the working of poverty alleviation programmes which have been

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divided into two, viz., self-employment programmes and wage employment programmes. The last two chapters recapitulate the observations of the study and make conclusions.

This study espouses the view that the benefits of the anti-poverty programmes do not trickle down to bottom level people, rather they trickle up to top level people. According to welfare economics theories one man's income is another man's expenditure when the economy is at general optimum. But Indian economy has not reached the stage. This anomaly has provoked economists to contemplate the blemishes in the prevailing structure of the system.

At the outset this study adheres the structuralist approach. It raises reservations against the interventionist approach followed in the anti-poverty programmes. Like majority of the studies it argues that the structure has to be transformed, since the structure itself does not permit the people to come out of the poverty circle.

This study has vindicated Jim Potter's theory that the attention paid to particular subject by historians is inversely proportional to the material available. This study has documented the impact studies on poverty cogently with the sole objective of bringing together the major studies within the loose framework of self-employment programmes and wage employment programmes when there are sound frameworks to group the studies. But the author has succeeded in his effort.

It would have been a better contribution to this field had he put it in perspectives and avoided verbatim repetitions.

On the whole the work will be a very useful document for those who work on poverty for their master or doctoral degrees in understanding the basic concepts and issues in poverty and factors responsible for the failure of alleviation programmes. And certainly to familiarise the strangers with the views of noted economists, it will be the best source.

SOUTH ASIAN COOPERATION IN INDUSTRY, ENERGY AND TECHNOLOGY

Edited by ARIF A. WAQUIF; published by Sage Publications, New Delhi-48, 1987; pp. 259; price Rs. 180/-.

Reviewed by DR. B. SATYANARAYAN, Professor of Economics, Department of Economics, Osmania University, Hyderabad-7.

The concept of South Asian Association for Regional Cooperation (SAARC) has gained in strength and importance ever since the idea came into being in 1981. Since then, considerable progress has been made at the governmental level among the seven South Asian nations to foster the idea of regional cooperation. Summit meetings of the heads of State are being held

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every year from 1985 onwards. Gradually, the concept of regional cooperation has gained much wider acceptance among non-officials, academics and professionals.

The book is broadly divided into three parts. Part I is devoted to cover papers on the "Regional Industrial Cooperation". Likewise, parts II and III have covered "Regional Energy Cooperation" and "Regional Science And Technology Cooperation" respectively.

The paper by Arif A. Waquif provides perspectives on the empirical, policy and analytical dimensions of regional economic cooperation for industrial development in South Asia. R.L. Varshney's paper has dealt with the empirical evidence which says that India's intra-regional trade has increased during 1970's, though it has shown a declining tendency during early eighties. Likewise, the paper of T.S.N. Fernando has argued that the policy of import substitution and export expansion has certain disadvantages for smaller countries as it makes them dependent upon other markets. However, Sadrel Reza pointed out in his paper that the SAARC's activities were mostly aimed at enhancing national development capabilities rather than regional economic integration. On the other hand, I.N. Mukherji's paper has brought out the revealed comparative advantage by making use of the concept of revealed opportunity costs of intraregional and international trade.

On the theme of "Regional Energy Cooperation", the paper by B. Bowonder and V.L.V.S.S. Subba Rao have pointed out the broad implications for the regional energy sector on the basis of production structures and trade relations of the member countries. On the other hand, the paper by John S. Lall cautions against a purely materialistic approach devoid of ecological considerations for exploiting natural energy resources in the Himalayan regions. S.N. Sharma's paper focusses on the need for cooperative development of Nepal's water and forest resources. Similarly, the paper, by M. Asaduzzaman and M.S.K. Chowdhury discussed energy situation in Bangladesh and the potential for regional energy cooperation from the point of view of Bangladesh. Similarly, the papers by K.G.D.D. Dheera Singhe and S. Sivanathan focussed the energy situation from a Sri Lankan perspective.

On the theme of "Regional Cooperation in Science and Technology", the paper by Falguni Sen and V.L.S.S.S. Subba Rao reviewed the role of technology in industrial development of South Asian countries. The paper discusses the Macro and the Micro approaches to costs and also the implications of technological dependence on the developed countries. On the other hand, the paper by M. Masihuddin reviews the work of SAARC's Technical Committee and the Study Group on Science and Technology Cooperation.

On the whole, we find that the papers published in the book bring out the potential for regional cooperation in Industry, Energy, Science and Technology among South Asian countries. It is hoped that the book will be a good addition to the literature on Regional Cooperation with special reference to South Asian countries.

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CONTROLLING THE ECONOMIC FUTURE: POLICY DILEMMAS IN A SHRINKING WORLD

By MICHAEL STEWART, Wheatsheaf Books Ltd., 1983; Sussex.

Reviewed by S. SHIVA RAMU, Professor, Indian Institute of Management, Bangalore.

Michael Stewart's book gives an analysis of controlling the economic future in the politico-economic framework. The reference data presented is up to the beginning of 1980's. Many facts have moved faster than the author has envisaged.

Many issues raised by the author have already been recognised as global commons problem, like air and water pollution, energy conservation on an international scale. The intraregional organisations have started promoting environmental management consistent with sustainable development. Many projects funded by the World Bank have mutually supportive objectives of economic growth and environmental protection. The European Council has endorsed in June 1989 the Delors Committee Report on Economic and Monetary Union in the European Community. The three basic characteristics of a monetary union are total and irreversible convertibility of currencies, freedom of capital movemtnts and fixed exchange rates. The basic elements of an economic union are a single market, a joint competition policy, common structural and regional policies and coordination of macro-economic policies.

The move towards an integrated economic policy is taking shape. In this context, the analysis presented by Michael Stewart can be treated as an introduction to understand the complex interplay of economic policies in industrialised countries. The governmental macro-economic policies, such as fiscal, monetary and exchange policies, have difficulties. It may be difficult to accurately forecast the effect of such policies. Sometimes, it may be difficult to balance various instruments or to identify one instrument with one target variable. The Keynesian doctrine was replaced by the Monetarists doctrine. This, the author feels, has done "more harm than good". This doctrine does not take into account the behaviour of politicians who "live and operate in the short run".

After a cursory glance of the industrial economy's macro-economic policies during 1960's and 1970's, the author comes to the conclusion that there are two presumtions, viz., space and time dimensions. The spatial dimension restricts the economic policy to nation-state level. The policy-makers have a concern for short one. With the data of 1965 to 1979, the author concludes that there is more dependence on output and employment in OECD countries. Consequently, the government's "ability to influence key domestic variables has been correspondingly eroded". Considering the implication of the expansionary fiscal action in the home country has affected foreign countries. The policy actions in foreign countries have effect on the home country. The

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home country policy instruments have less effect on target variable. Sometimes these instruments have more effect on foreign governments' target variable. There is response of the foreign government policies on home country's target variables. The author feels the deflationary bias in OECD countries had worsened recession. This is due to the divergent judgement by world financial community and individual governments. As there was interdependence on one country following deflationary policies resulting in deflationary consequences in others, these policies were abandoned during 1980.

There are two alternatives for the decision-making procedures. One way is to de-link the country from the international economic system and the other way is coordinating economic policy with other countries. The author is in favour of the second alternative and takes up few issues like employment, growth, natural resources, energy problem and environment. Dealing with the future of employment, he perceives uncertainties in the labour market in deciding the right applications for the labour force. However, it can be ensured "by significant degree of long term forward planning". Next he deals with the exhaustible resources which may affect the economic growth. And he believes "it should be possible to devise a system of taxes and subsidies which would provide private and social discount rates into line". Similarly, he deals with the energy problem and environment issues. He suggests a long time horizon to consider different alternatives.

The author gives a limitation of economic policy instruments in the present day political process where there is limited spatial and time dimensions in determining economic policy instruments. While dealing with these aspects, the author has neither been able to completely explain the economic policy decision making and its impact nor political decision making and its impact. So the book in itself is neither fish nor fowl. However, the issues raised in the book are still relevant. There are several attempts at various fora to synchronise the macro-economic policies of individual countries with that of global interdependence. In this context, the framework and the issues alluded in the book are current. One can read the book for a quick overview of issues involved in macro-economic policies and their interdependence on other countries.

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THE ROLE OF JAPANESE ECONOMIC ASSISTANCE IN INDONESIAN ECONOMIC DEVELOPMENT

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Introduction

The Indonesian government nowadays is entering the beginning of Pelita V which begins on the 1st April 1989.

With reference to the development that has been carried out up till now and has brought a better level in the standard of living of the society on the whole, notwithstanding the various problems coming out, consequently the development concerned should be necessary to be continued. Therefore several aims in the Pelita V should be emphasized. Among others the most important factors from the point of view of macro economy are:

First: The continuation of the development process with the average growth rate of 5% per year.

Second: The extensification of job opportunities that can accommodate additional labour force, which is calculated comprising of two million people per year with the population growth rate bearing the average of 1.9% per year for the next five years period.

Third: Efforts in suppressing the debt-service-ratio into a maximal of 25% at the end of Pelita V, by the enhancement of foreign exchange reserves by acceleration of non-oil and gas exports.

Indonesian Economy in the Next Five Years

The fifth five-year development plan (REPELITA) has already started beginning April 1, 1989.

The target for real economic growth, annual average of 5%, is not bold by some nations' standards; it is similar to what Indonesia has achieved in the past five years. As to the previous five year development plan's target, Repelita IV from 1983 to 1988, of 5% yearly, the country's economy has averaged annual growth of 5.1%.

The government has ambitious targets for agricultural output, which it hopes will expand an average 3.6% a year. It is hoped rice production in 1993 will be 17% higher than at present, as the country battles to remain self-sufficient in rice.

Another ambitious goal concerns the nation's balance of payments. Government wants the current account deficit to narrow to only US $ 2.44

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billion in the year beginning April 1, 1989. The current account measures trade in goods and services, plus some unilateral transfers of funds.

The new five-year development plan, or Repelita V, also hopes to reach 1.8% population growth a year by 1994 from 2.1% at present. The country has had some success in containing population growth but wants to do better. According to new development plan, the population is expected to rise to 193 million people in five years from the current 176 million.

Gains in reducing infant mortality are also sought. The government says it wants to increase average life expectancy by 1994 to 65 years from 63 years at present.

Private investments should continue to expand rapidly not only to increase the manufacturing capacity to retool old plan machinery in order to maintain the export momentum, but also to create jobs for the large number of unemployed people. The unemployment problem in Indonesia has reached a dangerous level whereby open unemployment has accounted for 2.5 per cent of total work force in 1988 according to the latest available statistics.

The fact that about 31 per cent of the unemployed people are the products of secondary education further indicates the urgency for the settlement of the unemployment problem in order to maintain social and political stability in the country. It is a homework that all of Indonesians have to work out starting in the year 1989.

Role of Japan in Indonesian Economy

During the end of this decade, the role of Japan is important enough to influence the Indonesian economic development in the field of trade, investment as well as foreign creditors to Indonesia.

In the field of trade, Japan is still the greatest trade partner for Indonesia with trade balance that always positively recorded a surplus for Indonesia, although the volume is decreasing.

The trade balance development of Indonesia-Japan is given in Table 1.

On average about more than a quarter of Indonesian total import is originally from Japan, while almost a half of the foreign exchange of Indonesian export is obtained by export to Japan.

Japanese position is more than other important trade partners of Indonesia such as: United States of America, European Economic Community Countries and ASEAN countries. According to the composition, almost half of the Indonesian exports to Japan are oil and gas, while capital goods and raw material for the industry process (especially automotive industry and processing) are the largest import component from Japan.

The Japanese role which is great enough in foreign trade of Indonesia gives just an opposite illustration as seen from the Japanese foreign trade sector. For example, during 1986, 44.7% of Indonesian export is to Japan, while by Japanese side the export value is only 5.6% of the whole Japanese import in the

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same year. In such a manner 29.0% of the whole Indonesian import is from Japan, while this amount is only 1.5% of the Japanese export to the whole world.

TABLE 1

TRADE BALANCE INDONESIA-JAPAN, 1980–1988

(billions US $)

Years	With Japan			Total Indonesia		Role (%)	
	Export	Import	Surplus	Export	Import	Export	Import
1980	13,0	3,5	9,5	24,0	10,8	54,1	31,6
1981	11,9	4,0	7,9	22,3	13,3	53,4	30,0
1982	11,2	4,3	6,9	22,3	16,9	50,2	25,4
1983	9,7	3,8	5,9	21,2	16,4	45,8	23,2
1984	10,4	3,3	7,1	21,9	13,9	47,5	23,7
1985	8,6	2,6	6,0	18,6	10,3	46,2	25,2
1986	7,2	3,1	4,1	16,1	10,7	44,7	29,0
1987	7,4	3,7	3,7	17,1	12,9	43,3	28,7
1988*	6,1	2,8	3,3	14,5	9,6	42,1	29,2

*up to third quarter of 1988

Source: Indonesian Financial Statistics, from Bank of Indonesia.

This unadvantaged condition indicates that every alteration in the economic development policy of Indonesia has been no more influenced against the Japanese economy. On the contrary a little changing in Japanese development/growth may be more influenced against the Indonesian economy.[1]

In the Japanese trade relations with the ASEAN countries, Indonesia is the largest trade partner. Of the US $ 44.0 billions trade volume between Japan and ASEAN during1988, Indonesia has a share of about 28.6%, which is higher than Singapore which has a share of 24.1%.

TABLE 2

JAPAN-ASEAN TRADE RELATION 1988

Trade Relation	Indonesia	Singapore	Thailand	Malaysia	Philippines	Brunei
I. Export	3,1	8,3	5,2	3,1	1,7	0,1
II. Import	9,5	2,3	2,8	4,7	2,0	1,1
Total	12,6	10,6	8,0	7,8	3,7	1,2
Sharing in the Japanese Trade (%)	28,6	24,1	18,2	17,7	8,4	2,7

Source: Japanese Ministry of Finance, 1989.

[1]The BKPM Chairmans view, Ir. Sanyoto S., in an One Day Seminar Organized by the Metropolitan Forum Pratama, April 28th, 1989.

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In the field of investment, Japan is still the biggest investor in Indonesia; about a third of direct investment in Indonesia is originally from Japan by the biggest composition of manufacturing industry sector (93%) while the rest is spread in the sectors of agriculture (1.7%), mine (0.1%) and real estate (0.6%).

Like other countries which accept aid, Indonesia expects this Foreign Capital Investment to be made domestically to speed up economic development process of the country. Transfer of technology during the effort to develop industrial activities and further to be able to compete in the international market will be a long term process for countries that accept aid. For Japan itself the reason for this direct investment is to expand her business abroad as market places of her products. Many kinds of efforts are made by government to stimulate Japanese investors to invest in Indonesia, among others, through deregulation steps in the field of Foreign Capital Investment, creating healthy investment climate, tax regulation and so on. Entirely up to March 1989, Indonesia has accommodated US $ 6.5 billions from Japan which are invested in 256 Foreign Capital Investment Projects. Average calculation of every FCI Japanese project is about US $ 25.5 millions. In such a manner, the survey in 1988 indicates that the Japanese FCI enterprises' condition in Indonesia becomes more brighter. The survey of 150 joint venture enterprises in 1986, gives an indication that a total of 28.4% of the respondents who explain they are making losses, decrease up to 15.5% in 1987.[2]

Certainly this healthy financial condition will be one of the stimulants to the other Japanese investors to invest in Indonesia. In comparison to the five other ASEAN countries, based on the survey of 1984, the Japanese investment in Indonesia up to 1983 is higher than these five countries. It is necessary to be noted here, although Japanese investment value in Indonesia is higher than the Japanese investment in the five other ASEAN countries, but the amount of the projects indicates the opposite situation.[3]

This refers to the average investment value of each project in Indonesia relatively over the investment value of each project in these five countries (see Table 3)

This high rate of Japanese investment in Indonesia certainly brings about opportunity costs for the Indonesian economy. Technical production, especially in the manufacturing sector, demands heavy industry and large-scale industry with high capital-labor ratio. It may certainly be a disturbance to Indonesia's development direction, especially in connection to the problem of manpower capability and development.

A review of all Japanese investment projects in Indonesia and the number of people employed in these projects reveals that the metal industry has the highest capital-labour ratio (CLR) as seen in Table 4. Transportation and chemical industries occupy the second and third place. The highest amount of

[2]Ibid.
[3]Indonesia-Japan Economic Relations, Prijono Tjiptoherijanto & Dody B. Waloeyo, 198

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TABLE 3
JAPANESE TOTAL DIRECT INVESTMENT IN ASEAN COUNTRIES
(1981–1983)

Specification	Indonesia	Singapore	Malaysia	Philippines	Thailand	Brunei
Amount (billion US $)	7,6	1,7	0,9	0,8	0,6	0,1
Number of Manufacturing Firms	149	206	154	93	155	n.a.
Amount in each firm (million US $)	51,0	8,3	5,8	8,6	3,9	—

Source: Computed from Toyo Keizai Shinpsha, Kaigai, Sinsyutsu Kigyo Sooran (Japanese Multinationals Facts and Figures), Jan. 1985.

investments is in the textile industry, followed by the chemical and metal industries. Therefore, the chemical and metal industries, which require sizeable amounts of investment, have the highest capital-labor ratio. This means that the number of people they employ does not match with the amount of capital invested in them. On the average, the textile industry requires the highest amount of investment, or US $ 16,648.4 thousand for each plant. The electronic industries, including those which produce batteries, require an average investment of US $ 13,671.4 thousand while the average investment in a service industry is US $ 1,660.6 thousand. The food and beverage industries, which have the lowest capital-labor ratio, require the smallest amount of investments. On a broader spectrum, it is more profitable for the government to place priority on projects with low capital-labor ratios, or those which employ more people.

In the case of foreign aid, Japan is also a prominent donor country to Indonesia by both bilateral loans and multilateral sources through the IGGI, as well as in connection with the commercial loans. As an illustration, between the period 1980–1985 the amount of soft loan increased faster than semi-soft loan or commercial loan.[4]

This Japanese role of a large creditor is based on the Western countries' pressure. Because of that, Japan is more active in giving financial aid to the development of the underdeveloped countries since the existence of "YENDAKA" resulted in a surplus in her balance of payment. Beside the positive point of view about Indonesia as debtor country with better debt management, the above mentioned situation also stimulates the Japanese aid to this country (Table 5).

The reason mentioned above is one of the many factors coutributing to the sharp increase in the Japanese soft conditional loans to Indonesia. In the near future the possibility that Japan will give any more soft conditional loans in large amount is very small.

Ibid.

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TABLE 4
INVESTMENT OF JAPANESE PROJECT, BY SECTOR, END OF 1981

Sector	Total Investment Realisation (US $1,000)	Total Projects	Total Indonesia Employment	Japan + Others Employment	CLR (US $ 1,000)	Remarks	Average Investment for each Project
Agriculture/ Animal Husbandry	16,119	(5)	1,035	22	15.2		3,223.8
Fishery	52,235	(18)	3,832	220	12.9	Including foreign Pearl Cultivation, Fish Processed, Frozen Processed Fish	2,901.9
Forestry	25,700	(6)	2,188	163	11.0	Including foreign manpower other than Japanese 15 people. Including Saw Mill.	4,283.3
Construction	29,018	(23)	1,636	125	16.5	Construction/Real Estate Contractor	1,261.7
Services	58,303	(5)	1,861		31.3	Leasing, Financing, Hotel Industry, Office Rent	11,660.6
Transportation	27,093	(7)	612	21	42.8	Indonesian side 3,848, Japanese side 3,352, Loan 19,596	3,870.7
Food Industries	2,758	(2)	1,236	6	2.2		1,379.0
Textile Industries	399,562	(24)	21,637	250	18.3	Indonesian side 32,860, Japan and others 133,530, Loan 23,178	16,648.4
Printing	5,575	(4)	745	25	7.2		1,393.8

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Printing Industries	5,575	(4)	745	25	7.2		1,393.8
Chemical Industries	285,454	(31)	7,948	182	35.1	Chemistry + Pharmaceuticals, Glass, Tyre, Cement	9,208.2
Machine Metal Industries	27,245	(8)	1,300	30	20.4	Machinery	3,405.6
Automotive Parts	244,870	(23)	7,079	130	34.4		10,646.5
Wood Industries	31,824	(10)	2,658	68	11.7	Wood Processing, Furniture, including several Forest Exploitation	3,182.4
Electricity	95,700	(7)	4,763	67	19.8	Including Battery	13,671.4
Mineral Non-metal	6,000	(2)	330	9	17.7	Metal Products, Basic Metal, Metal Processed	3,000.0
Metal	74,240	(26)	3,666	101	19.7		2,855.4
	193,600	(1)	1,046	213	153.8	Asahan Aluminium	9,920.0
Others	22,712	(8)	2,803	51	7.9	Footwear, Fishing Nets, Charcoal, Cigarettes Filter, Leather Rippers, Musical Instruments	2,839.0

Source: Indonesia-Jepang Enterprises Directory 1982, Himpunan Usahawan Indonesia-Jepang (Indonesia-Japan Association), List of Japanese Investment Projects in Indonesia, 1967–1981, JETRO (calculated).

Average, including Japan-Indonesia Investment, Loan.

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TABLE 5
FOREIGN LOAN FROM JAPAN TO INDONESIA (ODA)

(in Million US$)

Type of Loan	1983/84	1984/85	1985/86	1986/87
Soft Loan				
Loan from Japan	279.3	321.3	303.3	1,378.6
Total loan received by Indonesia	2,254.1	2.506.4	2,473.9	3,856.2
Share of Japan (%)	12.4	12.8	12.2	35.8
*Commer*cial Loan				
Loan from Japan	393.3	610.6	368.4	241.8
Total loan received by Indonesia	905.0	1,278.3	951.7	500.0
Share of Japan (%)	43.4	478	38.7	48.4
Total				
Loan from Japan	672.6	931.9	671.7	1.620.4
Loan received by Indonesia	4,258.6	4,579.1	5,289.8	4,916.8
Share of Japan (%)	15.8	20.3	12.7	33.0

Source: Repelita IV.

The priority of Japanese policy to use the fund for its own country's development and the assumption that Indonesia is not proper any more to receive loans on soft conditions, is closely related with the successful development process of Indonesia. The increase that is assumed to be big enough in the form of commercial loans and half soft loans which are mostly given by the "syndicated loans" or the commercial banks of Japan. The loans destinated for "private sectors" are estimated to increase in future too.

An estimation about the trend of the Japanese loans to Indonesia in the future are seen in Table 6. This estimation is based upon the development during the period of 1980–1985.

TABLE 6

Type of Loan	Development between Period 1980–1985	Future Estimate
Soft loan	Increase with big amount	Small increase
Medium-soft loan commercial (syndicate loans to, bond issue by Govt.)	Stable increase	Steady increase
Commercial loans to private	Stable increase	Steady increase

Source: Export-Import Bank of Japan

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Conclusions

The decline in oil prices in the beginning of the 1980s reduced government development funds. In its effort to prevent a disruption of the economy, the government sought to create a business environment which is supportive of capital investments. It adopted new policies governing areas such as tax, licensing and monetary affairs. These policies were adopted to give more incentives to foreign investments in Indonesia.

Japan is the most important economic partner of Indonesia. This is demonstrated by the fact that most Indonesian exports went to Japan. Meanwhile, Japan is a major source of imports to Indonesia, particularly machinery which has greatly aided government investment projects.

On the other hand, Indonesia is the second largest country, after the United States, for Japanese investments. Most of the factories in Indonesia were built by Japanese firms of Japanese-Indonesian joint-venture companies.

Japanese investments in Indonesia, as they are in other countries, have had a positive impact on the country's economic growth. The sizeable amount of Japanese investments in Indonesia is largely due to foreign investment policies designed to generate the country's industrialization.

Japanese investments are generally concentrated in manufacturing which has a high ratio between capital and labour. This is one of the problems encountered by the government of Indonesia in deploying its labor force and in creating employment opportunities. Transfer of technology from Japanese companies is another problem. It is difficult to expect a transfer of technology because the technology used by Japanese companies comes in a package which one needs to understand thoroughly.

Japanese investment in Indonesia is ever increasing in terms of investment value as well as the number of projects. Indonesia is still viewed by the Japanese as an ideal place to transfer a part of their production activities outside Japan, besides as a market place that is potential for their production. On the other side, financial condition which is more healthy in terms of benefits obtained from these joint venture companies is not separated from the Indonesian government's effort to do away with many kinds of deregulation policies in the investment field.

In the case of foreign aid, in reality, it is up to Indonesia how to manage the loan funds considered beneficial as much as possible. Therefore utilization of foreign loans could be an effective and efficient means for development purposes.

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THE UNITED STATES AND THE LESS DEVELOPED COUNTRIES IN THE 1990s

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This paper begins with the assertion that widespread poverty and large income inequalities in the modern world are unjust. The pursuit of justice is a major objective of any worthy society, therefore the United States must be concerned with the existence of extreme inequality and poverty everywhere. It is then argued that the high rates of growth of GDP and of foreign trade in the period 1950–1975/80 were exceptional events in world history, and cannot be expected to continue. Development strategies must take these expected declines into account. A review of developmemt theory concludes that a sustained development effort must be indigenously based and must respect the institutions and traditions of the society. It must also produce continuing productivity growth. The United States aid programs should be designed and implemented in order to contribute to this sort of development process, and a number of specific suggestions are made as to how this might be done. Finally, it is argued that the United States must do more to help the low income people of the world. More means that the Congress and the President must commit more of their time and energy to educating themselves and the population as to the importance of doing this in an effective manner. If the Congress and the administration do commit themselves in this way, more aid funds could be used effectively. Surveys show that the American people would welcome an opportunity to do more.

Introduction

One of the genuinely important facts about the world is that there exist a large number of people whose income is so low that they can barely survive or so low that they have little occasion to share in the opportunities and the excitement that the world offers. These low income people live in a world with other people whose incomes are much higher, and who can avail themselves of the goods and services and opportunities that make possible a comfortable and rewarding life, a life in which they may realize most or all of their potentialities for personal growth and increased understanding. It is also a fact that in many countries a vast majority of the population is very poor, and in other countries the poor are a smaller proportion of the population. It is customary to speak of poor or less developed countries as those countries characterized by mass and continuing poverty, a situation most easily measured by low income per capita;

[1] I am grateful to Brian Levy, Michael McPherson, and Joseph Pechman for comments on a previous draft of this paper. Remaining errors and shortcomings are of course my responsibility.

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low relative to the achievement and maintenance of physical health standards and low relative to per capita income in other countries. I shall use less developed country in this sense. Such language is convenient, but can be misleading. There are poor people in all countries and there are rich people in all countries. Indeed some of the world's richest people are resident in countries where most of the rest of population is exceedingly poor. We should never forget that there are many poor people in the United States and other "rich" countries. It is people, not states or governments that enjoy utility or welfare.

These are "genuinely important facts" because they impinge on so many aspects of all of our lives. Large inequalities in income are a major source of international tension and ill-will. They create a situation in which rich countries vie with each other for influence, even dominance, in the less developed countries. Inequalities invite dependency and make real political and economic independence, a notable objective for all countries, difficult to maintain. Certainly not all of the tensions and unrest in the world are due to the existence of widespread poverty in the midst of riches, but equally certainly such inequalities do contribute to the tension that we see all around us. Since widespread and continuing turmoil anywhere creates uncertainty and instability everywhere, the elimination of mass poverty and reduction in inequalities in the availabilities of goods and services and opportunities among the world's population has benefits for almost everyone.

It is, however, crucial to make explicit that the basic reason why the existence of mass poverty in many parts of the world is a genuinely important fact is very simple: such poverty and such enormous inequalities are unjust, and the pursuit of justice is a fundamental objective of any worthy society. What constitutes justice with respect to international economic issues is, of course, a question that has no final answer, and I can only announce my general position.[2]

The injustice arises from the existence of widespread poverty; so the moral obligation is to help alleviate that poverty. While we should be willing to share our output of consumer goods with the poor (especially in cases of famine or other catastrophe), our primary obligation is to help people find a way to eliminate their poverty, i.e. it is to help them increase their productivity. So the usual arguments about distributive justice are not what we are concerned with, and many of the reasons for the objections to re-distributing output are not immediately relevant. Our obligation, to use slightly different language, is to help eliminate the source of the poverty, not simply compensate for the existence of poverty by supplying goods and services.

To rest our interest in the elimination of poverty on an explicit moral basis is important for several reasons, three of which can be briefly noted. If justice does in fact require that we commit ourselves to such interest, that is all that need be said, for justice is its own reward. There are two additional reasons.

[2]The literature on this (as on all topics) is unlimited. I found Beitz (1979), Hoffmann (1981), Rawls (1971) and Little (1982, Chapter 16) especially helpful.

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For many countries, the United States included, arguments to help less developed countries built on ideas of justice and moral obligation may now be more convincing than those built on the possible mutual advantages of such help. This is possible simply because so many people are now convinced that aid is not effective as a means of influencing nations to be what we want them to be and to act the way we want them to act. On the other hand surveys show rather clearly that most people recognize a moral obligation to help those who are in especially unfortunate positions. In the third place, if the injustice of existing inequalities became widely accepted, this might contribute to making a more effective aid policy possible. If the idea that aid is not an effective use of the United States foreign political and economic policy is widely accepted, then the pressures to manipulate aid policies to help specific interests in the donor country might possibly be less. This may be naive of course, but the aid efforts of the Scandinavian countries do lend some credence to this point.

In Section I, some data are presented to establish the broad outlines of the extent of poverty and international inequality and, where possible, their changes over time. From this review, several general hypotheses are reached (or at least announced) about the process and consequences of the growth of GDP, about the purposes of economic development, and about the role of rich countries in the development of poor countries. Section II is a brief review of the "theory of development". The term is put in inverted commas in order to alert us all that there is no generally accepted, formal theory build on fundamental axioms and yielding testable hypotheses and clear cut policy conclusions. The purpose of this section is to establish a point of departure to help us think about development of less developed countries in the nineties and the role of the United States in that development. This latter topic is considered in Section III. There is a brief concluding section that considers the magnitude of the role of the United States: are we doing enough? The most talked about issue of developing countries—the debt crisis—is not discussed.

I

Table 1 shows the average annual rate of growth of GDP per capita in constant prices for a variety of time periods and a variety of developing countries. Several points may be made.

A. The most obvious characteristic of the data is that the growth rates vary widely among the countries shown and across time for any given country. Any selection of time periods of similar length would show the same variation. Since population growth rates are much less volatile in general, the variation observed in the table is due almost entirely to variations in the rates of growth of GDP. It does appear however that there are some generalizations that seem defensible.

(i) Growth rates were somewhat higher in the 1960s than in the 1950s. Indeed the 1960s seem to have been the most impressive of the post-fifties

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period. In our group of countries Ghana was the only country that did not achieve a positive average annual rate of growth in the 1960–70 years. The 1970s were almost as good, and about one half of the countries achieved a higher growth rate in the seventies than in the previous decade.

(ii) In the 1980–85 period, growth rates declined markedly. Indeed, the decline began in general around the mid-1970s. Only India, Pakistan, Sri Lanka, and China grew more rapidly than in the seventies. Many countries experienced a decline in GDP per capita growth over the five year period. The Worlk Bank averages for several categories of countries are especially revealing. The strong showing of China and (somewhat less so) India in the 1980–85 years stands out among all countries, especially the low income category. Botswana also did remarkably well, and a few other countries (e.g. Turkey, Tunisia, Egypt, Korea, Malaysia) achieved acceptable growth rates in the eighties, albeit somewhat lower than over the previous decade or decade and one half. Essentially however one may say that the growth rates of developing countries declined in the first half of the eighties compared to those in preceding decades.

(iii) The widespread negative growth rates over the 1980/85 years are concentrated among sub-Sahara African and Latin American countries, generally, the poorest and the richest (in per capita GDP) of the developing countries. India and Sri Lanka, two countries with weak records in the sixies and seventies picked up in the eighties, and China's growth rate more than doubled in this period. These exceptions again illustrate the complexity of growth, and the many factors that bear on its level. Only Korea, in our list, seemed to grow in a more or less constant way.

B. The last two columns of Table 1 and all of Table 2 show developments over time of the relationship between the GDP per capita in rich and poor countries. The last two columns of Table 1 are ratios of per capita GDP in the identified country to that in the United States. These ratios are based on purchasing power parity estimates (Summers and Heston, 1984), which always show smaller differences between rich and poor than do estimates based on exchange rates. As of 1980, these ratios show some relative "catching up", i.e. most of the less developed countries grew at a somewhat faster percentagae rate than did the United States. Some countries gained by a considerable margin, some by a more modest margin, and some few fell further behind. Were these ratios available for 1985 there would doubtless be more countries that fell further behind. Table 3 shows similar data for the several groups of countries.

Table 2 however shows that the absolute differences between the per capita GDP of the United States and those of the developing countries increased across the board for all intervals. Between 1950 and 1975 the data in Columns 1 and 2 show that absolute differences more than doubled in almost all instances. The increased differences between 1955 and 1980 are somewhat less when purchasing power estimates are employed, but are still marked. The differences continued to rise in the decade after 1975. Only Korea was just about able to

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TABLE 1

	Average Annual Rate of Growth of GDP per Capita (Selected Less Developed Countries)						Country GDP per capita as a % of US GDP per capita	
	50/60	60/70	70/80	80/85	50/75	65/85	1955	1980
Botswana	.8	3.3		8.6	3.1	8.3	7a	21
Egypt	.9	2.1	5.3	2.4	1.4	3.1	10	15
Ghana	1.9	–.3	–3.1	–4.0	.7	–2.2	19	9
Ivory Coast	0	4.3	1.7	–5.5	2.0	.9	14a	18
Kenya	1.0	2.8	3.1	–1.0	1.8	1.9	9	6
Nigeria	2.1	.6	4.0	–6.7	2.6	2.2	13	20
Tanzania	3.7	3.3	1.5	–2.6	2.6	0	5a	6
Bangladesh	—	1.3	1.3	1.0	—	.4	7a	5
India	2.3	1.1	1.5	3.0	1.5	1.7	7	6
Pakistan	—	3.9	1.6	2.9	—	2.6	7	8
Sri Lanka	1.3	2.2	2.5	3.7	1.6	2.9	18	10
Taiwan	4.8	5.9	8.1	3.9	5.3	7.1	12	31
Indonesia	1.6	1.9	5.3	1.4	2.0	4.8	7a	10
Korea	2.6	6.1	7.8	6.4	5.1	6.6	12	25
Malaysia	.8	3.7	5.4	3.0	2.6	4.4	17	29
Philippines	3.2	2.1	3.6	–3.0	2.8	2.3	12	13
Thailand	2.6	5.4	4.7	3.0	3.6	4.0	8	15
Iran	3.0	8.4	–.6		5.1		14	24
Argentina	2.1	2.8	.6	–3.0	1.9	.2	39	40
Brazil	3.1	2.5	6.2	–1.0	3.7	4.3	15	27
Chile	1.2	2.4	.7	–2.8	.7	–.2	30	30
Colombia	1.3	2.1	4.0	0	2.0	2.9	22	24
Ecuador	1.9		5.8	–1.4	2.5	3.5	14	20
Mexico	2.4	3.9	2.1	–1.8	2.7	2.7	24	32
Costa Rica	2.6	3.1	3.3	–2.2	2.6	1.4	23	28
China		3.3	4.0	8.6		4.8	9	14
Turkey	3.5	3.5	3.5	2.0	3.7	2.6	18	26

Sources: Estimates for 1950/60 and 1950/75 are from Morawetz (1977), Table A-1. These rates refer to GNP per capita in 1974 US dollars. They are not, therefore, exactly comparable to the estimates for the other periods. The growth rate for Taiwan in the 1965–85 column refers to 1965–81 and is from Scitovsky (1985). Growth rates for Taiwan for 1970–80 and 1980–85 are from *Statistical Yearbook of the Republic of China*, various years.

Estimates for the other periods are from *World Development Reports* various issues. Estimates for 1960/70, 1970/80, 1980/85, and 1965/85 were computed by subtracting the rate of growth of population from the rate of growth of GDP in constant prices. Intervals may not be exactly those indicated in the headings for all countries.

The ratios of the developing country GDP per capita to that of the United States (Columns 7 and 8) are from Summers and Heston (1984).

The estimates in Column 7 marked 'a' refer to 1960.

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TABLE 2

ABSOLUTE DIFFERENCES BETWEEN THE GDP PER CAPITA IN LESS DEVELOPED COUNTRIES AND THE UNITED STATES: VARIOUS ESTIMATES OVER TIME

	1 1950	2 1975	3 1955	4 1980	5 1976	6 1985
Botswana	2,238	4,938	4,834a	6,395		8,589
Egypt	2,176	4,952	4,631	6,912	7,610	8,819
Ghana	2,025	4,811	4,173	7,350	7,310	9,049
Ivory Coast	2,096	4,778	4,361a	6,679	7,280	8,769
Kenya	2,250	5,038	4,713	7,629	7,650	9,139
Nigeria	2,229	4,951	4,437	6,613	7,510	8,629
Tanzania	2,294	5,078	4,838a	7,597	7,710	9,139
Bangladesh	3,117a	5,135	4,840a	7,657	7,780	9,279
India	2,284	5,099	4,746	7,591	7,740	9,159
Pakistan	3,135a	5,107	4,754	7,426	7,720	9,049
Sri Lanka	2,288	5,104	4,364	7,251	7,690	9,049
Taiwan	2,154	4,421	4,465	5,567	6,820	
Indonesia	2,275	5,069	4,825	7,355	7,650	8,899
Korea	2,232	4,734	4,597	6,082	7,220	7,279
Malaysia	2,028	4,573	4,339	5,885	7,030	7,429
Philippines	2,210	4,898	4,550	7,067	7,480	8,849
Thailand	2,246	4,919	4,736	6,908	7,510	8,629
Iran	1,995	3,917	4,108	6,293	5,960	7,781
Argentina	1,471	3,774	3,138	4,880	6,340	6,662
Brazil	2,006	4,311	4,370	5,937	6,750	7,789
Chile	1,783	4,538	3,623	5,717	6,840	7,999
Colombia	2,070	4,728	4,010	6,207	7,260	8,109
Ecuador	2,103	4,735	4,411	6,533	7,250	8,239
Mexico	1,816	4,146	3,897	5,542	6,800	7,349
Costa Rica	1,933	4,404	4,038	5,919	6,850	8,129
China			4,678	6,954	7,840	9,119
Turkey	2,063	4,445	4,188a	6,020	6,900	8,349

Sources: Columns 1 and 2 Morawetz (1977) Table A8. Data are in "1974 US dollars". Estima in Column 1 marked with an 'a' are for 1960.

Columns 3 and 4, Summers and Heston (1984). Estimates for Column 3 marked with an are for 1960.

Columns 5 and 6 computed from GDP per capita data in *World Development Reports*, 19 and 1987. The 1985 estimate (in the 1987 World Development Report) has been deflated the increase in the US GDP deflation between 1976 and 1985. Evidently the three groups data are not exactly comparable.

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TABLE 3
PER CAPITA GDP GROWTH FOR GROUPS OF COUNTRIES

	1965–80	1980–85
Low-income Economies	2.5	5.4
China and India	3.1	6.7
Other Low Income	.5	.1
Middle-income Economies	4.1	.6
Lower Middle Income	3.8	2.9
Upper Middle Income	4.4	–.3
Industrial Market Economies	2.8	1.7

Source: *World Development Report* 1987, Tables 2 and 27. These averages represent the weighted average annual growth rates. Estimates equal the average rate of growth of GDP (in constant price minus the average rate of growth of population). There are more countries included in these averages than are listed in Tables 1 and 2.

hold its own in this period. Catching up in an absolute sense is therefore not taking place. That this is the case is due, of course, to the large absolute differences in GDP per capita at the outset of the period. For the absolute differences to fall over time requires that the inverse of the ratio of the growth rates exceed the ratio of the initial per capita GDP. Thus if the per capita GDP of a developing country is one-third that of the United States, its growth rate must be more than three times greater if the absolute gap is to be reduced. This is unlikely and it is even more unlikely that the poorer countries can, in this sense, "catch up". This, as a number of people (Morawetz, 1977, Fishlow, 1987) have emphasized, is an important point.[3] Before considering it in detail, one more bit of data is helpful.

C. Table 4 shows per capita growth rates for 10 European countries, the United States, Canada, and Japan. The evidence in this table is similar to that of Table 1. The 1960/70 interval shows generally the highest growth rates, up somewhat over the previous decade. The seventies begin to show a modest decline, except here and there, and an almost across the broad sharp fall in the first half of the 1980s.[4] It is useful to note that in the eighties there are no negative rates of growth in Table 4, unlike in Table 2.

Growth rates in the 1870–1913 period were also well below those for the 1950–75 period. The United States and Canada are the only countries in the

[3]According to data reported in Helmers (1979, p. 260) the 25 per cent of the world's population with the lowest income earned 12.5 per cent of the world's income in 1860, against 3.2 per cent in 1960.

[4]Maddison (1987) has a particularly illuminating set of data that show that a big decline in growth rates of GDP, productivity, etc. for six countries (France, Germany, Japan, Netherlands, United Kingdom, and the United States) began around 1973. See also Matthews, et al. (1982), especially Chapter Two.

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TABLE 4
AVERAGAE ANNUAL RATES OF GROWTH OF GDP PER CAPITA
(EUROPEAN AND NORTHERN NORTH AMERICA)

	1870/1913	50/60	60/70	70/80	80/85	50/75	65/85
Belgium	1.7	2.4	4.2	2.8	.6	3.4	2.8
Denmark	2.1	2.5	4.4	2.1	2.3	2.9	1.8
France	1.4	3.5	4.5	3.0	.5	3.8	2.8
Germany	1.8a	6.8	3.5	2.6	1.5	4.5	2.7
Italy	.7	5.4	4.7	2.4	.5	4.3	2.6
Netherlands	.8b	3.2	3.9	2.1	.3	3.3	2.0
Norway	1.4a	2.6	3.6	4.3	3.0	3.3	3.3
Sweden	2.3	2.8	3.7	1.4	1.9	3.0	1.8
Switzerland	1.3c	3.0	2.7	.1	1.0	2.6	1.4
United Kingdom	1.3	2.4	2.4	1.8	1.9	2.2	2.4
Canada	2.0	1.2	3.8	2.8	1.3	2.4	2.4
United States	2.2a	1.5	3.0	2.0	1.5	2.0	1.7
Japan	1.5	7.3	9.9	3.9	3.8	7.6	4.7

Sources: Estimates for 1870/1913 from Maddison (1964), p. 30. Estimates marked 'a' are for1871–1913, those marked 'b' for 1900–1913, and those marked 'c', 1890–1913. The estimate for Japan for 1870–1913 is from Madison (1987).

Estimates for 1950/60 and 1950/35 from Morawetz (1977).

Estimates for other intervals from various issues of *World Development Report*. Germany, after 1950, is the Federal Republic of Germany; so boundaries after 1950 are not the same as for the 1870–1913 period.

table that show a (slightly) lower growth rate during 1950–60 than during 1870–1913. International trade was fairly unrestricted and unimpeded, and the British pound was a solid international currency. So it was a good period for economic activity, and yet growth rates of GDP per capita were well below those for the 1950–75 period. Estimates of GDP in Mitchell (1975) for the United Kingdom and Germany go back to 1850, and for the fifty year period 1850–1900 annual rates of growth of per capita GDP averaged about 1.5 per cent for both countries, similar to the post-1980 figures.

All of these data, plus argument yet to come, suggest strongly that the growth rates of 1950–75/80 period were unusually high relative to the past. The evidence since 1975/80 suggests further that growth rates among all countries, more developed and less developed, are moving back to levels that are more compatible with the longer sweep of historical evidence.

D. Table 4 adds a piece of evidence to the catching up story. Japan did

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more or less catch up. Estimates from Maddison (1987, Table A-4) show that Japan's per capita GDP was about 29 per cent of that of the United States in 1870. (The per capita GDP of the United States was more or less equal to the average of France, Germany, Netherlands and the United Kingdom, at this time.) In 1950, it was about 18 per cent, and by 1985 Japan's GDP per capita ($ 11,300) was just a bit less than the average of industrial market economies ($ 11,810), and was some 68 per cent of that of the United States.[5] The absolute difference between per capita GDP in Japan and the United States increased from $ 1,402 in 1870 to $ 6,775 in 1950 and declined steadily thereafter to $3,594 in 1984 (Maddison, 1987, Table A-4). So the big catching up took place in the twenty years after 1950, when Japan's average annual growth rate was 8.2 per cent compared to 2.2 for the United States.[6] Korea, whose GDP per capita growth rate after 1960 was almost as high as that of Japan did not narrow the absolute gap at all over this period. The reason is simply that as late as 1960 GDP per capita in Korea was six per cent of that of the average of the OECD countries (Morawetz, 1977, Table A-7), and to make a dent in the absolute difference, Korea's growth rate would have had to be about 16 times that of the West. Such a difference obviously was not possible. Of course, if Korea continues its spectacular growth rates, it will at some point begin to close the absolute gap. This is quite possible, but, as noted above, most growth rates seem to be moving downward toward (what seem to be) historical trends from the "high" rates of the 60s and 70s. Korea's growth rate in the 1980–85 period remained impressive, but was substantially lower than it was in the 70s. The same general point applies to Taiwan, another exceptionally fast growing economy (Li, 1988).

The continuing absolute differences in per capita GDP are relevant for several reasons. They tell us that income inequality among nations will be with us for the indefinite future. They also remind us that since "catching up" is not an achievable target, it is necessary to identify explicitly what the target or objective should be in the years immediately ahead. I will argue later that the effort to catch up has, in fact, led to policies and strategies that have penalized societies in a variety of ways. Iran is the most obvious, but not by any means, the only, example. Objectives framed in terms of poverty reduction and the establishment of a more flexible, responsive economy—an economy with substantial transformation capacity—are increasingly especially relevant (Bruton, 1988).

E. There is one more body of data to note. It is generally recognized that the 1950–75 period was characterized by unusually high rates of growth of foreign trade. Numerous observers have argued that an important—according

[5]Summers and Heston (1984) show Japan's per capita GDP to be 72 per cent of that of the United States in 1980.

[6]The exchange rate movements in the years after 1985 make international comparisons even more hazardous than they were earlier when rates changed less rapidly.

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to many the most important-explanation of Korea and Taiwan's rapid growth has been their exploitation of this strong foreign trade market.[7] Similarly, countries which have impeded foreign trade in a variety of ways have often been criticized for this, and their (frequent) slow growth explained in terms of these impediments. The success of an "outward oriented" development strategy depends heavily on whether or not world trade is expanding strongly. It is therefore helpful to have some appreciation of the extent to which growth of world trade in the 1950–75/80 period was in fact exceptionally high. Exceptionally high means that a continuation of such a rate would not be expected, and the policy-maker should act on the presumption that the rate of growth of world trade will tend to decline to more usual levels.[8]

Available data are neither illuminating nor reliable as both exports and imports are heavily dependent on passing issues—wars, weather, exchange rate adjustments, aid, export promotion schemes, etc. However. there do appear some long run tendencies worthy of note.

The ratio of both exports and imports to GNP seems to have risen over time for most OECD countries. For those eight countries for which data are available for the 1870–1913 period exports in real terms grew more rapidly for all save the United States. In the post-1960 years both export and import growth rates for the countries shown in Table 5 exceed that of GDP in all cases except imports of Japan. In 1950 the ratios of exports and of imports to GDP were generally lower than in 1913. This surely reflects the consequences of the two world wars and the depression of the thirties. After 1950 trade grew rapidly as the numerous impediments to international transactions were removed. By 1973 trade/GDP ratios were, with notable exceptions (especially Switzerland and the Netherlands), similar to those of 1913. The ratios were up again in 1985, but this seems largely a consequence of slow GDP growth rather than of a significant change in the volume of foreign trade in the various economies. Even so, rates of growth of exports especially and imports to a slightly less extent were lower in the 1980–85 years than in the two previous decades.

Over extended periods one expects foreign trade to increase relative to GDP because of falling costs of transportation. A steady decline in transport costs will not only increase the flow of existing merchandise trade, but will also result in products hitherto not traded, becoming tradable. This effect is perhaps paramount in the trends for the 1870–1913 period shown in Table 5. Expor

[7]Hong Kong and Singapore are usually included with Taiwan and Korea as the major successes of the post-1950 period. The two city states seem so special that I have not included them in the present discussion.

[8]There is difficulty about the directions of the argument here. If all countries in fact follow a more or less free trade policy, then trade would grow rapidly. So the question might be, will all (or most large) countries follow a trade oriented strategy over the next decade or so? Whether they do depend on whether the policy-maker sees such a policy working. It seems to have worked in the post-1950 years, but some observers are becoming convinced it cannot keep on working.

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TABLE 5

GROWTH RATES IN REAL TERMS OF GDP, EXPORTS AND IMPORTS: SELECTED INTERVALS FOR THE WEST

	1870/1913		1960/70			1970/80			1980/85		
	GDP	X	GDP	X	M	GDP	X	M	GDP	X	M
Belgium	2.6	3.5	4.7	10.9	10.3	3.0	4.9	5.5	.7	3.4	1.1
Denmark	3.2		5.4	7.1	8.2	2.5	4.7	3.1	2.4	6.0	3.8
France	1.7	2.8	5.5	8.2	11.0	3.5	6.8	6.9	1.1	2.2	1.1
Germany	2.8	5.1	4.4	10.1	10.0	2.6	5.8	5.9	1.3	4.6	2.6
Italy	1.4		5.3	13.6	9.7	3.0	6.7	3.7	.8	4.7	3.2
Netherlands	2.1	4.6	5.2	9.9	9.5	2.9	5.3	4.0	.7	3.4	2.6
Norway	2.2a		4.4	9.1	9.7	4.8	7.3	4.5	3.3	5.8	4.2
Sweden	3.0	3.8d	4.4	7.7	7.2	1.7	2.4	2.3	2.0	6.4	3.8
Switzerland	2.0c		4.3	8.5	9.0	.4	4.1	4.4	1.2	3.5	3.6
United Kingdom	1.9	2.1	2.9	4.8	5.0	1.9	7.5	4.1	2.0	2.6	4.3
Canada	3.8	6.5	5.6	10.0	9.1	3.9	4.4	6.0	2.4	8.8	5.4
United States	4.2	3.8	4.3	6.0	9.8	3.0	6.9	4.8	2.5	6.6	8.4
Japan	2.5		10.9	17.2	13.7	5.0	8.9	4.4	3.8	7.3	2.4

a, 1871–1913; b, 1900–1913; c, 1890–1913; d, 1893–1913.

Sources: Maddison (1964, p. 166) and *World Development Report,* 1982 and 1987.

growth rates (import rates are not available) in this period are generally well below those for the 1960–70 and 1970–80 decades. The latter growth rates are affected by the postwar adjustments in trade policies combined with the rapid entry into world trade of a number of developing countries. Neither of these factors will continue indefinitely. The hypothesis then for the West is this: both exports and imports grew more rapidly in the 1950–75/80 years than can be expected over the near future. Growth of foreign trade will continue absolutely, and relatively to GDP, because of the transportation argument noted above. The splurge in the growth rate due to the peculiar circumstances of the 1950–75/80 years will fade away (indeed it already has). Changing policies will have some effects, but these are likely to be modest (compared to those of the 1950/60/70s) during the next decade or so. Indeed if policies have a major effect, it may well be to reduce trade/GDP ratios.

Export-import data for the less developed countries show diversity (Table 6), and there are no historical series to serve as a basis of comparison. There are many factors at work. On the import side foreign aid can affect trade growth rates for some of the countries to a marked degree, as can sharp changes in

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certain commodity prices. The precariousness of the foreign trade sector in these countries is evident from a glance at the 1980/85 columns. Negative growth rates (in real terms) mean that the rate of increase in the availability of foreign goods is declining below previous levels and countries must adjust in one way or another. The estimates in Table 6 suggest that most of the countries shown adjusted by a reduced growth of GDP.

TABLE 6
GROWTH RATES OF GDP, EXPORTS AND IMPORTS FOR LESS DEVELOPED COUNTRIES

	1960/70			1970/80			1980/85		
	GDP	Exports	Imports	GDP	Exports	Imports	GDP	Exports	Imports
Egypt	4.3	3.2	–1.1	7.4	–.7	8.8	5.2	3.9	8.0
Ghana	2.1	.2	–1.5	–.1	–8.4	–3.3	–.7	–7.9	–8.6
Ivory Coast	8.0	8.8	9.7	6.7	4.6	8.1	–1.7	1.8	–10.7
Kenya	6.0	7.2	6.6	6.5	–1.0	–1.0	3.1	–3.9	–9.0
Nigeria	3.1	6.6	1.6	6.5	2.6	20.0	–3.4	–9.9	–11.5
Tanzania	6.0	3.4	6.0	4.9	–7.3	–.3	.8	–11.1	–3.9
Bangladesh	3.7	6.5	7.0	3.9	–1.9	3.5	3.6	7.1	3.1
India	3.4	3.0	–.9	3.6	3.7	2.8	5.2	4.6	2.2
Pakistan	6.7	8.2	5.3	4.7	1.2	4.3	6.0	2.4	3.9
Sri Lanka	4.6	4.7	–.2	4.1	–2.4	1.1	5.1	7.3	1.5
Indonesia	3.9	4.0	2.0	7.6	8.7	11.9	3.5	1.1	4.9
Korea	8.6	34.1	20.5	9.5	23.0	11.8	7.9	13.0	9.8
Malaysia	6.5	5.8	2.3	7.8	7.4	7.0	5.5	10.7	6.4
Philippines	5.1	2.2	7.1	6.3	7.0	3.4	–.5	–2.1	–5.9
Thailand	8.4	5.2	11.2	7.2	11.8	5.4	5.1	8.4	2.8
Iran	11.3	12.6	11.4	2.5	–9.7	12.3			
Argentina	4.2	3.4	.3	2.2	9.3	2.1	–1.4	3.2	–17.2
Brazil	8.4	5.1	4.9	8.4	7.5	4.2	1.3	6.6	–9.1
Chile	4.5	.6	4.7	2.4	10.9	2.8	–1.1	2.3	–12.5
Colombia	5.1	2.2	2.5	5.9	1.9	5.7	1.9	1.6	–1.4
Ecuador		2.9	11.5	8.8	7.5	9.9	1.5	6.3	–4.3
Mexico	7.2	2.8	6.4	5.2	13.4	7.0	.8	10.1	–11.3
Costa Rica	6.5	9.6	9.9	5.8	3.5	3.8	.5	.4	–4.4
China	5.2			5.8			9.8	8.8	17.6
Turkey	6.0			5.9	1.7	3.3	4.5	25.3	10.1

Sources: *World Development Report*, 1982 and 1987.

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The most obvious thing to note however is that the growth of foreign trade does not generally exceed that of GDP for the developing countries as it did for the OECD countries. Only for Korea does the growth of both exports and imports exceed that of GDP in both decades and the 1980/85 interval; for a sizeable number of countries GDP growth exceeded both trade categories. The generally haphazard relationship between the growth of GDP and that of foreign trade in developing countries compared to the more stable relationship in developed countries is doubtless due in part to different trade policies over the period. Many of the developing countries actively pursued policies that dampened both import and export growth, but the mixture of countries and the change over the three periods strongly suggests that policies as such are not the only relevant explanation, and in some, perhaps most, instances not the most important. More generally, one may argue that for many countries (including many not included in the tables), structure, technology and labor skills, infrastructure, etc., were such that foreign trade was of modest relevance to the growth of GDP. This is true even if the trade/GDP ratio is high. This statement applies most directly to the traditional sector and less so to "modern" sectors imposed on the society. This argument suggests that the growth of GDP has its origins much more in the real domestic economy, in its traditions, organizations, structure and culture, than in exporting and importing. Korea and Taiwan are exceptions, but they appear to be exceptions, not models for all developing countries.

Summary

The previous discussion may be summarized as a series of presumptions.

1. There is great variation in growth rates of GDP per capita among developing countries and within the same country over time. Growth rates show evidence of general decline after 1970, and there are frequent negative rates in the 1980s.

2. Growth rates in the West showed much less variation, but also a tendency toward decline over the seventies and especially the eighties. However, there are no negative growth rates. More important is the evidence that growth rates were considerably higher in the post-1950 period (until 1980–85) than in the pre-1913 years for both the developing countries and the West.[9]

3. Growth rates of per capita GDP in the period 1950/1975–80 appear exceptionally high, and cannot be expected to continue in the long term future. There will of course be exceptions.

4. Growth rates for many developing countries exceeded those for most OECD countries in the years of high growth. Per capita GDP in the former

[9]Herman Kahn, et al. (1976, p. 54) state that it took the United States 200 years to increase its per capita income from $ 250 to $ 7,000 (in 1975 prices). I am not clear on the source of the early figure, but the implied low growth rate is another indicator that growth has always generally been a slow process.

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countries therefore generally rose as a percentage of that in the latter. Despite this, absolute differences increased sharply over the period because of the enormous differences that prevailed at the beginning of the period.

5. Arithmetic therefore dictates that "catching up" by developing countries to more or less absolute equality with the OECD countries is not to be expected in any foreseeable future. It is further argued that policies based on a catching-up as soon as possible are misguided, and, in some instances, downright harmful.

6. Foreign trade of the nations of the West grew more rapidly, both absolutely and relative to GDP in the 1950–75/80 years than it had prior to 1913. It is expected that the high rates of growth of exports and imports observed in the recent period will not continue.

7. Growth rates of foreign trade of the developing countries were much more haphazard than those for the West, but they also showed some evidence of slowing down.

II

To try to get a handle on a way of approaching these issues, a brief survey of development theory is helpful.[10]

A. In the late forties and early fifties when concern with development became a live practical issue in all parts of the world, economics did not offer any sort of "development theory" that could serve as the basis for the design of policies. The most readily available argument at the time was the dynamization of the Keynesian income determination model, first worked out by R.F. Harrod (1939 and 1948). Harrod had noted that investment, a key variable in the determination of the level of aggregate demand in Keynes's short run, would result in a larger capital stock over multiple short runs. Investment that helped resolve today's aggregate demand problem became capital tomorrow and thereby increased the productive capacity of the economy. Full utilization of capacity therefore required that aggregate demand grow along with this capacity. Harrod's formulation led to the result that capacity would grow at a rate determined by the ratio of the saving rate ($S/Y = s$) to the productivity of capital, measured by the relationship between capital stock and the flow of output ($K/Y = k$), s/k. The higher the saving rate and the lower the capital output ratio, the greater the rate of growth of capacity. Attention in the West at this time was given mainly to the problem of insuring that demand would grow at this rate. That this was the direction of attention is due of course to the

[10]An excellent short survey of development theory may be found in Chapter 2 of Tony Killick (1978). Ian M.D. Little (1982) is a fine book-length study of development economics. Little is, however, convinced that there is no such thing as development economics. It is all micro economics, which applies equally well to both developed and developing countries. A good review of the early theorizing on development may by found in Chapter Two of Mikesell (1968).

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widespread belief that the basic problem of the economies of the West was that of oversaving. That income (aggregate demand) had to grow at a compound rate given by s/k seemed to many to be a formidable prospect.

The Harrod argument was widely used in analyses of development. The most obvious difference between countries with high per capita GDP and those with low was that the capital stock per unit of labor in the former was much higher than in the latter. More physical capital therefore was the key to raising GDP in developing countries, and to do this required an increase in saving or more foreign assistance. The Harrod formulation indeed made development, i.e., growth of GDP, look easy—all that was necessary was to increase the rate of saving and investment. The argument also led to a simple role for foreign assistance: if the domestic saving rate was too low to achieve the targeted rate of growth, aid could provide the additional savings that were necessary.[11]

The formulation was also more or less the basis of the most widely employed development "model", that of the dual economy, due initially to W.A. Lewis (1954) and enriched by Fei and Ranis (1964) and many others. The less developed economy is initially characterized by a small modern sector and a large traditional sector. The modern sector is a replica of the economies in the West, and development meant increasing the size of this sector. Therefore all investment was to be in this sector and labor was to be drawn from the traditional sector until the entire economy was modernized, i.e., made like the West, and all labor was employed in this modern sector. When that time arrives, underdevelopment is overcome. The policy implication of this model was clear: achieve a high rate of capital formation in the modern sector until all the labor from the traditional sector is absorbed.

There are four things to emphasize about this way of thinking about development: (i) Capital formation is the mainspring of development; (ii) Relative factor prices have no role to play; (iii) Development means, or is defined as, becoming like the West and therefore imports, and the capacity to import, become an especially strategic consideration, as did industrialization. Development then is considered essentially the "displacement" of existing economic organizations of the low income country by those of the West; (iv) Foreign assistance was conceived as supplying additional saving and modern technical and administrative knowledge.

The irrelevance of factor prices arose from one or more of three possible assumptions: the technology of the West was so much more productive than that prevailing in the low income countries, that any factor combination issue was easily resolved in favor of Western technology. It became expedient then

[11]Another reason for the attraction of the capital accumulation formulation was the general success of the Marshall Plan. The United States had provided investible funds to Europe after the war, and these funds were used in such a manner that productive capacity was restored in a relatively short time. The same, it seemed, should be possible for the countries of Asia, Africa, and Latin America.

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to assume that production coefficients were fixed by the advanced technolog Secondly, the assumption could be made that, with a horizontal supply curv of labor (i.e. widespread unemployment), the ratio of factor prices (cost o capital to cost of labor) would remain unchanged until all labor was full employed in the modern sector. With this assumption there may well be a variet of production techniques available but the same one would be chosen until th economy was fully modernized. Thirdly, some observers argued (or assume that economic agents in the developing countries were so dominated b tradition that they would respond slowly, if at all, to price signals, and hence factor combinations were determined by considerations other than factor prices This last assumption, plus a variety of others about the inappropriateness of th market, led to a great emphasis on physical planning as the main polic instrument in these years.

B. This general approach (combined, of course, with many details an special adjustments) began to change by the early 1960s. Perhaps the fir fundamental change was in response to the accumulated evidence that a inappropriate exchange rate and set of factor prices almost inevitably created a wide range of severe distortions that led in the usual textbook way t misallocation and hence less output than was technically possible. More fundamentally such distortions forced the economy to slow growth or to stop completely in order to correct a balance of payments problem, an inflatio problem, etc. Allocation, and hence relative prices, did matter, and to ignor them was to court disaster. Empirical evidence of the responsiveness of farmer to price signals was especially convincing and widespread, but so were th responses of other sectors of the economy. Getting prices right became th key—as important, if not more so, as high rates of capital formation. (Rober Solow (1956) is the main analytical model that supports these ideas, althoug the Solow model never became as widely used in the development literature a did the Harrod, fixed coefficient, model.)

An equally far-reaching change was the gradual decline in the emphasis o the role of investment, and a corresponding rise in the role of productivit growth as the mainspring of development. This shift occurred in large part as a consequence of the empirical evidence that showed that the contribution to th growth of GDP and to that of individual sectors of the economy of new capit was decidedly modest. Rich countries had become rich because the productivit of all their factors had grown slowly, but regularly, year after year.

The question then became how to create an economic environment in th developing countries such that productivity growth was a built-in feature in a sectors. The major sources of productivity growth are technical research an development (R and D) and "human capital formation", the improvement in th quality of labor. Again considerable empirical evidence has been accumulate to support this position. Despite the empirical evidence, however, policies th would increase productivity were much more difficult to work out and to desig

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than were policies to increase the rate of investment. Large expenditures on R and D and on education and other forms of training often did have considerable effects, but often also there was disappointment and new problems created or old ones exacerbated, rather than resolved, e.g. unemployment. There is still no general theory of productivity growth.[12]

A significant number of economists, especially those in the World Bank and the International Monetary Fund, emphasize the importance of "correct" allocation. It is not clear, however, if this emphasis rests on the arguments of getting the most from given resources or whether it is believed (for unexplored reasons) that correct allocation itself contributes to productivity growth. At any rate, the argument has resulted in down playing physical, comprehensive planning and pushing hard for greater reliance on the market. This view includes as well, a rather uncompromising condemnation of the government as a prisoner of special interests, and hence a major source of the problem, rather than of a solution. (See e.g. Lall, 1985.)

The third major modification that emerged over the 1960s and early 1970s refers specifically to international trade. The apparent success of Korea and Taiwan in their overall development efforts was frequently explained by their even greater success in exporting. The import substitution strategy of the 1950s and early 60s, followed by many developing countries, aimed at protecting the developing economy from foreign competition and reducing reliance on foreign trade. The new arguments reversed this: exporting was crucial to successful development, and an outward oriented policy was the key to success. As shown in Section I above world trade boomed in the 1960s and 1970s, and thereby were created considerable opportunities for exporting.

There were two specifically identified advantages of exporting: first it contributed to productivity growth, although the exact way it did this is not completely clear. Secondly, rapid growth of exports helped to prevent a balance of payment bottleneck from emerging, and thereby helped prevent a stop/go sequence that, as already noted, defeats productivity growth.

Attention was also given to other possible sources of distortion, such as tax and subsidy systems and various institutions (labor unions, extended families, etc.). Part of the development task includes modifying these arrangements so that there are fewer and fewer distortions. Development economics and micro economics then become essentially the same. Inequality in the distribution of income, it is further argued by this point of view, will be resolved automatically if these policies are implemented. The same observation holds for unemployment. Both unemployment and inequality were common problems in the capital accumulation models.

[12]There is of course an enormous literature on productivity growth. Denison, Jorgenson, Nelson, Griliches, Mansfield and many others have studied productivity growth with care and insight. The point in the text means that we cannot define the conditions under which productivity growth will take place.

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This approach is summarized in Bruton and Clark (1987) as follows: development will be facilitated most effectively if the following conditions prevail:

(a) There is overall macro stability achieved by appropriate budget and monetary policies.

(b) Factor and product prices reflect accurately relative scarcities. Of special importance are exchange rates, wage and interest rates, and prices of agricultural commodities. There should, therefore, be few if any direct controls or subsidies.

(c) The economy is reasonably open. Tariffs should be low and quite uniform, and exchange and import controls should be essentially nonexistent, and foreign investment allowed, even encouraged.

(d) A non-distorting and well-administered tax system should be in place.

(e) Publicly owned (or partly owned) enterprises should be run exactly as if they were privately owned, profit-seeking firms.

In an environment characterized by these conditions, the domestic saving rate (plus foreign aid, loans, and investment) would permit a rate of investment that would produce an acceptable rate of growth. Macro stability and "correct" prices facilitate identification and selection of the investment opportunities with the highest social rate of return, including investment in improvement of labor quality and in R and D. Great weight is placed on the reliability of the results obtained from formal project evaluation. The "correct" prices of domestic factors of production and of foreign exchange will help to insure that exports increase in such a fashion that no foreign exchange (or other) bottlenecks appear. The investments in physical and human capital, the accumulation of new technical knowledge, and the absence of bottlenecks generate growth of output of goods and services.

While this approach is not a pure laissez-faire approach, the general implication of this new orthodoxy is that the role of the government in the economy should be modest indeed. Governments are generally more inefficient than the private sector, and their activities seem inevitably to lead to large scale rent seeking and other directly unproductive activities. With foreign private investment encouraged, there is little need for much international aid, except in isolated instances. Proponents of this new orthodoxy are willing to explain the failure of a country to grow by "wrong policies", i.e., policies not consistent with those just listed. Korea and Taiwan are frequently cited as successes because they, it is claimed, generally followed these policies, and India's (and other countries') slow growth is accounted for by their failure to do so.

C. This new orthodoxy has gained considerable academic support, but its strongest exponents are the World Bank and the International Monetary Fund. It is difficult to evaluate the extent to which policy makers in governments around the developing world accept these arguments. It seems clear that had the Bank and Fund not pushed this approach, and often made its acceptance a

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condition for assistance, the policies would not have gained as much favor as they have among policy makers in developing countries. Few countries have accepted all this as wholeheartedly as its advocates would like. It can be argued that even Korea and Taiwan have not followed such a set of policies very closely and that their success is due largely to policies (and other characteristics) not contemplated by the new orthodoxy. These countries have achieved high rates of growth of exports. This perhaps is the only undisputed aspect of their postwar experience.

A number of objections to the new orthodoxy have been expressed with varying degrees of support.

(i) This new orthodoxy, like the capital accumulation approach, rests on the notion that development is essentially a matter of the displacement of the indigenous with the imported.

(ii) Development is defined as growth of GDP per capita. Little attention is given to the role of institutions, values, culture, religion, etc. as themselves important sources of welfare. The new orthodoxy pays little heed to these matters, and, it is sometimes argued, in its concern to extend the influence of markets is willing to sacrifice them willy-nilly for more goods and services.

(iii) The approach places blame for slow growth, inequality, inflation, balance of payments problems, misuse of aid, etc. primarily on "wrong policies" of the developing countries. It gives little attention to the policies of the West that affect the developing country's capacity to grow, or to the more basic difficulties that characterize the developing countries—incomplete markets, inexperienced governments, colonial heritage, institutions that have evolved to help relieve some of the costs of poverty and are ill-suited to facilitate growth, etc.

(iv) The approach assumes that structural problems do not exist or that they can be quickly overcome by a strong dose of the price medicine. More generally, it is argued that there is no basic obstacle to transforming the economies or that, if there is, it is a consequence of wrong policies, rather than representing some fundamental, deepseated characteristic of the economy and society.

(v) The role of the government needs much more careful specification than is provided by the new orthodoxy. The nature and extent of the division of labor between the public and private sectors is heavily dependent on a variety of factors specific to the country under consideration—history and culture are especially important. The difference between the role of government in Korea and in Taiwan is frequently noted, and indeed the role of government varies markedly among countries generally looked upon as successful.

(vi) Most of the empirical evidence in support of the new orthodoxy applies to the post 1950 years, which, as already emphasized, appear to be unusual years for growth of both GDP and for world trade. Data and other evidence for the pre-1940 period are less supportive of the approach.

D. These objections have attracted a sizeable following, but it is generally

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agreed that no *new new* orthodoxy has yet emerged. In addition to the lacunae just listed, some more positive arguments are available that do point the direction in which a new new approach may, at some time, be found.

The most obvious point is that we need to understand development, in contrast to displacement. Any approach should seek to explain why and how economies change, not simply how they may duplicate the already rich West, and thereby cast off their indigenous characteristics. For this purpose the dual economy model is open to many doubts. This means most specifically that the country must use *its* resources, in contrast to trying to create—or import—resources equivalent to those in countries with high per capita GDP. Primary focus must be on the sources of productivity growth, not simply on the allocation of resources of given productivity. The main role for the price system is thus not to ensure that the usual collection of marginal conditions are met, and output from given resources thereby maximized, rather it is to ensure that no bottlenecks appear that force the economy to stop for their correction. A stop/go situation to repeat, is a productivity growth defeating situation. This condition alone is sufficient to deny the equivalence of micro economics and development economics. Poor people are poor because their productivity is low, and the basic development question is how to raise this low productivity.

That some protection is necessary early in the development effort is accepted by numerous observers. (The new orthodoxy is not always unambiguous on whether trade should be free or limited in some way or other.) Protection is necessary to create opportunities for searching for and learning new technologies and new management procedures. The protection must not distort the economy to any significant degree and should not penalize exports. For reasons elaborated later, a significantly undervalued exchange rate is an effective means of providing such non-distorting protection.[13] As productivity rises so too will transformation capacity, and it is substantial transformation capacity among its resources that makes it possible for a country to live comfortably in the world community.[14] The objective on the production side is to create, behind this protection, a more flexible, responsive economy, in which productivity growth is occurring regularly.

Specific attention must also be given to "institutions". The relevant notion of institution in the present context is that of conventions of economic and social behavior that supplement explicit laws or contracts or that limit the way the market works. Institutions are a "set of rights and obligations in force . . . defining (1) what markets exist, taking markets, in the broadest sense, to include all voluntary exchanges, and (2) how economic relations are regulated in areas

[13]The undervalued exchange rate does discriminate in favor of tradeables relative to non-tradeables. This distortion should be modest in most instances, and will not have adverse effects on exports or the balance of payments.

[14]The very useful term "transformation capacity" has been made popular in various writings of Charles P. Kindleberger.

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where markets do not exist" (Matthews, 1986, p. 905). Such institutions vary widely from country to country, and affect what is do-able at a given time. Some institutions have direct links with basic values, and therefore are themselves important sources of welfare. The destruction of these institutions in the name of development would impose major costs on the community. Development then must be sought in a fashion that allows these institutions to continue or to phase out in a slow, painless way. Institutions then limit what can be done at a given time and may affect how something is done and, perhaps most importantly, are a determinant of what kind of economic change will in fact increase social welfare. This point leads to the last issue that must be included in any approach to development.

Development and other economics has not had much to say about the composition of consumption, especially of increased consumption. This is, in part, a consequence of the common practice of equating development with displacement; so, the assumption was simply that people in the developing world would want the same things that those in the rich countries want. It is also due, in part, to the common assumption of economics textbooks that economic actors have complete and unambiguous information about their preferences and about their substitutability among goods and services in response to changes in relative prices. Evidence suggests that these assumptions interfere with, rather than illuminate, our understanding of a significant component of welfare.

The obvious point is that welfare enhancing consumption must be learned, just as production capacity must be learned. Consumers in newly independent nations who are experiencing new consumption opportunities cannot know *a priori* what consumption will yield the greatest welfare. In particular, they must learn that the preferences of people in the currently richer countries are not necessarily theirs, and that, in fact, they must find their own. Thus any theory of development must include some hypothesis about preference formation, and how new preferences that result in greater welfare come into being. Evidently where incomes are very low, simply more food, better shelter, improved health are understandably much in demand as income rises. It is however also evident that choice problems appear at relatively low incomes. Many choices go deep indeed—work and leisure, kind and place of work, family sharing arrangements, etc. Something more than indifference curves are needed for the illumination of these choices.

Albert Hirschman (1982) has emphasized that people often think they want one thing and when it is acquired find that they do not really want it. It is becoming evident, for example, that the increasing availability of goods and services in developing countries has resulted in considerable disappointment; such goods and services haven't produced the satisfaction anticipated, and, even worse, have frequently been acquired at the sacrifice of other things that yielded greater welfare. Tibor Scitovsky (1986) has recently emphasized the

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importance of "creative consumption" as a means to a more rewarding life. Michael McPherson (1983) has argued that want formation does have analyzable structures and that wants are really means to deeper ends, and that we must move beyond simple observation of overt behaviour to understand the sources of personal development. Poverty is demoralizing then not only because it may deprive people of their physical needs, but also because it deprives them of the opportunities to achieve wants of a deeper significance. Permanent poverty may discourage articulation, even awareness of wants. It will be argued later that this preference finding process also requires some protection. Without such protection there is so much outside influence, so much temptation from imports that the realization of any sort of indigenously grounded preferences will almost surely be effectively thwarted.

To put all these pieces together into a neat, well specified model is hardly possible. It is useful however to try to summarize the main ideas. Each country has at some initial period a labor force with a set of characteristics—skills, experience, commitment, etc.—and a capital stock that embodies technical knowledge and other qualities and is of a particular age distribution. In each country there is a body of knowledge not embodied in existing capital and that is distributed among the economic agents in some way and that helps to determine the productivity of the capital and labor. These productivity resources are set in an institutional and social environment that directly affects their productivity. In this environment are also found sources of meaning and hence of welfare and equity. Such institutions and social arrangements impose constraints on what individual economic agents and the government deem appropriate and acceptable, and indeed on their capacities to preceive, to understand, arguments and ideas about alternative modes of economic endeavour and economic policy. These institutions and perceptions are largely the consequence of a country's history and the way and the path that it has followed over the years.

Growth of measured GDP occurs as resources increase in quantity and in productivity. Continued growth of factor productivity is necessary for continued growth of output. Productivity growth in turn depends in some small part on investment, but primarily on other things, especially on searching and learning. The growing economy is one where there are strong and evident inducements to search and to learn, and where there are relatively few obstacles to searching and learning and to producing. The latter is necessary to prevent the stop/go syndrome that is so damaging to productivity growth.

Growth takes place in a social and institutional environment, and is limited and directed by this environment. Equity and justice require—among other things—that this environment be respected; search takes place within the constraints created by the environment, and it is in this sense that it is respected. The kind of inducements that are appropriate and possible depends as well on the extent to which these social institutions and practices and perceptions

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produce entrepreneurial activity and generate a genuine interest in "more" and "other" among the population. Investment that does not conform, does not mesh with the society will be less equitable—and therefore less productive of increased welfare and, indeed probably of physical output—than is investment that is compatible with these basic and deepseated characteristics of the society. In particular, bottlenecks in the form of social unrest and tensions may be avoided, and, as just noted, bottlenecks can defeat productivity growth. Hence the risks of large scale imports of foreign capital, private or otherwise, that impose the alien, the suspect, and the non-understandable on the community.

Policy making enters in several ways into this approach. As noted a few paragraphs back, how economic actors perceive reality is relevant to their action. So it is for government officials as well, and their perceptions are also affected by history and experience. They too are subject to bounded rationality, to lack of information, to pressures from many sides, and to internal disagreements. Great difficulty in designing and implementing specific policies therefore exists. To get a coherent, effective policy in place in these circumstances is all but impossible. Effective governments may then tend always to be trying to adjust, change a policy here today, there tomorrow, etc. Governments too must therefore search and learn. Both are difficult.

The search and learning process applies not only to production, but also to consumption. Consumption is not, as the textbooks say, the final stage in an economic process. Enriching consumption is rather one of the means by which members of the society find greater welfare and a more rewarding life.

If then the objective of development is not simply to catch up with the West in terms of GDP per capita, what is it? The objective may be set in terms of the creation of a genuinely independent economy and society in which search and discovery and informed choice are inherent characteristics; these phenomena must take place in an indigenous setting that controls and directs them. The indigenous setting is crucial. It reflects the fact that institutions and traditions, cultural and political values bear on the concept and hence on the choice of policies and specific objectives. An indigenously based development, it is argued, is less likely to produce the tensions and unheavals, the disappointment and disaffection that imported change tends to produce. An approach to development built around these notions can also be expected to contribute directly to the reduction of poverty and to the emergence of an increasingly flexible economy with greater and greater transformation capacity.

III

We are here in our argument: The 1950/75–80 years were exceptional years in terms of growth of GDP and foreign trade for both developing and developed countries. These rates were higher than before 1940, and it is hypothesized that their recent decline will not be reversed in the next decade or two. Many

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countries however did not achieve satisfactory growth rates, even in these years, and poverty, especially severe poverty, was not countered very convincingly. There was little or no catching up with the West, and indeed it is clear that for most countries the notion of catching up is misguided. Tension and instability were omnipresent, even in countries where GDP grew rapidly, and such tension reduces, possibly eliminates, the utility created by the increased availability of goods and services.

Development theory found itself in a state of limbo. The simple growth model built on a constant capital output ratio model was found seriously wanting and the more general production function approach created many practical problems. The latter did however result in a concentration of attention on productivity growth where it surely belongs. A number of analysts solved the theoretical problem by equating development economics with micro economics, and pushed hard on the notion that a free and outward looking market oriented economy was the important policy guide. Other observers try to deepen the arguments to include a searching and learning process and a recognition of the role of institutions and traditions and the importance of creating an indigenous development process rather than accepting displacement.

Given this broad picture of how things are, the final question is, what should the role of the United States (and other donors) be? I begin with some brief comments about foreign aid in general, and then turn directly to the United States role in the 1990s.

A. The basic idea of foreign aid has, from the beginning, been something like the following: the developing country is presumed to be pressing against a particular constraint, and aid is then made available to release that constraint. The assumption is (usually) further made that the recipient country is pursuing those economic and other policies that legitimize the constraint, i.e. it is a constraint that the country, without aid, cannot be expected to overcome. The clearest example has already been mentioned, aid to increase the rate of capital formation. A country has a low per capita GDP, it has a tax system that, given its resources, does an acceptable job of taxing the rich, its saving inducements are such that the saving rate is about the maximum possible without reducing consumption below levels consistent with health standards, etc. The domestic saving rate in these circumstances is say nine per cent which produces a GDP growth rate of three per cent. The country seeks to grow at four per cent, and therefore seeks aid equal to three per cent of GDP in order to raise its rate of growth to four. It is further assumed that this process of capital formation will result in the creation of employment opportunities that would relieve poverty and reduce inequality. As already noted one of the attractions of the Harrod model was that it defined such a clear role for aid. Something similar to this set of circumstances prevailed for the Marshall Plan.[15]

[15]A complementary point has to do with the role of foreign exchange in development. Under

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There are three especially important assumptions that this way of approaching foreign aid rests on: (a) the United States (the West in general) can supply what is needed for development, physical capital; (b) the principal bottlenecks in the less developed countries are saving capacity and the absence of a domestic capital goods sector; (c) the developing country is willing and able to implement those policies that are most conducive to the achievement of development. As has been argued above, all these assumptions became suspect as our understanding and experience with development and aid accumulated. The role that foreign aid could play then became increasingly unclear.[16]

In addition it became evident early on that there were numerous extremely complex practical questions about aid. How should aid be distributed among the less developed countries? Should aid have strings, and if so, what kind? Should it be used to try to win friends and influence opinion in the receiving country? Should aid be for specific projects or for general support? Should aid be used to try to accomplish objectives, important in the donor country, but less so, or not at all, in the receiving country? Should aid go to the poorest countries or to those countries that could use it most productively? How much aid should go to each country? To what extent does aid, any aid, violate the sovereignty of the recipient? These questions have no final answers, of course, and are usually solved in large part by default and by *ad hoc* decisions in a given situation. They do however add great complexity to the design of an aid policy or to the construction of a general theory of aid and development, as well as to exacerbating the political issues.[17]

Relationships between donor and recipient are invariably awkward, and the creation of a genuine atmosphere of cooperation and common purpose and learning between donor and recipient has proved difficult to establish.[18] Stanley

specific assumptions, a country may have a sufficiently high saving rate, but be unable to convert the savings into exports (or into domestically produced capital goods) and hence to earn the foreign exchange to import the capital goods necessary for growth. It now seems generally recognized that this situation is largely a consequence of misguided trade and investment policies (Chenery, 1987). The basic paper on the foreign exchange constraint is Chenery and Strout (1966).

[16]The picture is further clouded by the fact that statistical investigations of the relationship between aid and development are inconclusive and open to many doubts. Perhaps the most satisfactory is that of Mosely (1987), which finds no evidence that aid and growth are positively related. See however the articles by Papanek cited by Mosely. Papanek's findings do show some evidence of a positive relationship.

[17]The large revenues from oil exports that a number of countries have received are similar to financial aid with no strings attached. It is difficult to find an oil exporting country that has been able to use such funds to establish, or begin to establish a flexible, responsive economy with widespread productivity growth. Oil revenues are extreme, of course, but do help us to understand the point. The main result of oil was to make huge amounts of imports possible. The problems created by "unlimited" amounts of foreign exchange are examined in Bruton in Ranis, et al. (1984).

[18]It is also relevant to the argument to note that an "Aid Industry" exists (Morss and Morss, 1986). This industry has its own objectives, not the least of which is to remain in existence.

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Please (1984), a long time officer of the World Bank, has noted that the Bank has often been arrogant and uninterested in the recipient country's views and aspirations. The World Bank in particular, but other donor agencies as well, have come to have very firm views of development policy.[19] There capacity to listen, to take into account specific circumstances and histories, to learn, and to adjust has been found increasingly wanting. The consequence is less effective aid and limited learning on the part of both donors and recipients. One might well argue that this situation is an inevitable consequence of aid giving and receiving. It is difficult, indeed, for an individual or group of individuals, who have within their power the decision to provide or withhold enormous sums of money to a recipient, not to feel and betray a sense of knowing what is best for the recipient.

B. Despite this range of difficulties and doubts, there are numerous success stories about aid. Although any evaluation of aid is filled with pitfalls, the available evidence does entitle us to say that there are many instances of successful aid efforts. Success here means that a specific aid project had the effect intended and no unwanted side effects. Poats (1985, p. 255), in his review of twenty-five years of aid, finds evidence that about one-third of aid-financed individual capital projects achieved or surpassed their stated objective. Another one-third were classified as satisfactory in the sense that they came reasonably close to achieving their original objectives, and another one-third were classified as disappointments. Only about 10 per cent, he concludes, were complete losses. The study of aid commissioned by the World Bank and the International Monetary Fund (Cassen, 1986) concludes that "the majority of aid is successful in terms of its own objectives" (p. 294), but that "[A] significant proportion [of aid] does not succeed" (p. 295). It is further noted that "[C]onsidering the difficult circumstances in which aid operates, one might conclude that the record compared well with the average for complex human endeavor" (p. 295). Cassen laments in particular that we seem to have learned little about aid from past mistakes, while Poats (1985) emphasizes that we have.

Evidence is clearest on aid for specific physical projects that can be frequently carried out by foreign contractors. Thus roads can be built, harbors and ports impoved, schools and other buildings constructed, etc. Such projects

This industry not only constitutes a lobby for aid, but is also active in helping governments work up aid requests and applications. Indeed in numerous instances it is the donor who originates the aid request. It is to be emphasized that this practice is not necessarily harmful, but it does remind us of the fact that the "demand" for aid does not result entirely from the recipient country's own conceptions and objectives. Aid agencies are obliged to "move funds" and their officials are very much aware that to do this often requires helping the recipient ask for aid.

[19]This view is essentially that of the "new orthodoxy" described above, but *not* the qualifications and addenda described above as the beginnings of a new new orthodoxy. The new orthodoxy and the Bank's (and the Internataional Monetary Fund) intransigent commitment to it have many critics. See for example Toye (1984), Sheahan (1987), and Mosley (1986). There are many others.

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have a clear cut identity, a beginning and an end.[20] Training through the longer term consequences of these kinds of projects is more difficult, and there is evidence that some of these kinds of projects, though completed and available for use, have not broken a real bottleneck in the development process.

The consensus seems to be that technical assistance is less effective than project aid, although it is important to appreciate that there have been numerous major successes (Poats, 1985; Cassen, 1986; Mosely, 1987). This form of assistance is less common now than in the 1960s and 1970s, in part because newly trained nationals of the developing countries are now available who can perform tasks previously done by expatriates, but also because many developing countries have major doubts about its effectiveness. The evidence of the capacity of aid donors to effect policy change in the receiving country is equally mixed, as, of course, is the capacity of donors to know what the right policy is. The World Bank and International Monetary Fund are most concerned with trying to do this sort of thing than are most aid donors.

Perhaps the most important failure has been the general inability of aid to have much direct effect on poverty, either the relief of poverty or compensating for its existence. Food aid has, in certain instances, helped the very poor, but frequently at the expense of the long run development of a more productive agricultural sector. This failure is partly a matter of the development policies followed by the country, but also a matter of the design and implementation of aid policies. A major objective of the United States aid efforts must be to improve this aspect of its programs.

C. I turn now to a discussion of specific policies for the 1990s. Two general approaches may be identified. The first is to keep the present general approach and to try to make it work better. This has been the approach followed by countless books and special studies that have examined the aid question. The second would be an effort to devise a substantially new approach. I try to do a little of both.

1. There is little doubt that the effectiveness of the present aid industry could be improved without modifying its basic structure. The evidence that aid has worked well in numerous instances suggests that these arrangements are not without merit. It is also widely recognized that specific changes could be made that would help to make them more effective. Some of these may be briefly identified here although in general they are well known.

(a) There should be much more cooperation among aid agencies, the World Bank, the IMF, regional development banks, etc. Similarly a country receiving aid very much needs a central aid management office to try to coordinate aid

[20] In a number of projects the evidence suggests that in the effort to complete a project quickly, a donor will do most of the work itself or will insist that the recipient treat it as something special and handle it by a distinct organization. This may get *that* project going well, but is hardly an effective way to contribute to learning and to creating an overall development program. This point is emphasized by Poats (1985, p. 257).

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proposals and availabilities. Government officials of recipients not only spend unnecessary time with the numerous aid people, but there is duplication and competition among donors, project proposals emerging from incomplete information about other projects that dampen the effectiveness of individual projects and indeed the whole aid package.

(b) Ways may be found to bring about more genuine cooperation between donor and recipient. The word genuine is important, because there is now the appearance of cooperation. One would think that cooperation would be expedited if all aid were managed by a single organization (e.g. the World Bank or another single multilateral agency), but there are problems. An agency that manages all the aid available has a great deal of leverage, and leverage is rarely conducive to genuine cooperation between giver and receiver, but competition among aid agencies does not seem to result in improved aid administration. Also large bureaucracies are seldom sources of imaginative and innovative ideas. Thus Mason and Asher (1973, pp. 257–58) write that "[I]t cannot be said that the Bank has been an outstanding leader in applying new techniques of project appraisal or analysis of development processes .... The Bank has perhaps been less venturesome than some other project lenders, at least until recently, in exploring new avenues of investment." They go on to say that World Bank's view of development process has been narrower and more limited than that of a number of organizations. On the other hand it does seem that there should be a style, a technique, a manner that could evolve that would bring about such cooperation. The evidence, one must acknowledge, does not support such a position. (See e.g. Morss and Morss, pp. 96 ff.) Since a single agency will not emerge, one can only exhort all aid providing groups to recognize that recipients have knowledge, insight, and understanding that is highly relevant to the establishment of an effective aid program. Less developed countries should cultivate the important capacity of saying no firmly and finally to aid offers they do not like. Aid donors (and international development banks) should learn that moving money is not what development is about (Tendler, 1975, p. 88–89), and that ignorance is common amongst all members of the human race.

(c) Aid donors, in particular, should try to learn the objectives of the government and of the society receiving aid. Aid programs that aim at objectives of little interest to the aid receiving society or to which the latter is explicitly opposed are surely misguided. Sovereignty deserves respect. On the other hand, it is legitimate for donor and recipient to discuss the objectives of aid as equal partners in the search for ways to enhance the welfare of recipients.

(d) We need to find ways to learn more about how aid is working. Repeating programs or projects or arrangements or techniques that have failed frequently is obviously absurd. Some way must be found to accumulate evidence on what works and what doesn't in such a way that it can be widely communicated and utilized.

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(e) Eliminate the distinction (for aid purposes) between foreign exchange and domestic currency costs. Also eliminate aid tying.[21] Neither of these common practices have any acceptable justification and are a major source of irritation and conflict. Aid tying is a poor way indeed to try to insure that aid helps the producers of the donor countries. Finally, aid funding should always include some recognition of the recurring costs that the project may create when it is operative.

Some headway in all of these has been made over recent decades, but there is still much to do. These proposals would leave the basic aid arrangements and methods largely unchanged from their present form. Even so it would take an enormous effort to effect these changes to any significant extent. It may also be noted that the practical problems referred to above—which countries get aid, how much, in what form, etc.—are not addressed by these suggested changes.

2. I would like now to discuss very briefly alternative ideas that seem to follow directly from the ideas and concepts discussed above as the adjustment and deepening of the new orthodoxy of development theory. In particular we want an approach to aid that enables it (aid) to contribute to real development in contrast to an approach that facilitates displacement.

Indigenous development is essentially a process of learning, so the idea is to create an environment in which searching and learning takes place as a matter of routine. The economic agents must themselves initiate the search, and they necessarily have to begin from where they are. Learning requires that something new become available that has some overlap or link with the old. Big leaps from one technique or activity to another that is completly different—i.e., no overlap with the existing and known—usually defeats learning and discourages search. (For further elaboration on this point see Hirschman, 1968, 1987, and Bruton, 1967, 1988.) Modest steps are much more likely to be firm steps and to be consistent with genuine intentions.

This argument rests on the notion that there is underutilized technical knowledge in the community, i.e. there is knowledge that can be found if the economic agent sets out to search. That this is the case seems reasonably well established (Chambers, 1983; Bruton, 1985). The capacity to find seems especially evident when the searcher has a specific question for which an answer is sought. The argument also assumes that private entrepreneurship and organizational capacity are present in appropriate amounts. This assumption is

[21]The distinction between domestic and foreign exchange costs is a common one in aid projects. The rationale is not clear, but in many cases distinction was made simply as a device to determine aid levels. Since the measurement of foreign exchange costs is far from exact, it leads to difficulties and debates about the level of such costs.

Aid tying—the requirement that aid funds must be spent in the donor country—is declining a bit. It is a device to make sure that it is firms in the donor country who get the orders from the expenditure of aid funds. In many instances this practice reduced the real value of the aid, and often resulted in a less suitable product than was available on the world market being imported by the recipient.

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defensible when the new activities are consistent with the experience and knowledge of the community. Enterpreneurship does become a problem if the new activities are large and alien to the society.

So the initial step is to create in the developing country a strong inducement to search on the part of economic agents. The most effective way to do this is to push the economy hard, but to make availability of additional capital and imports expensive and essentially forbid private foreign investment (multinationals) or foreign loans.[22] (Essentially is added here because there should be some exceptions, of course.) When an economy is pressed hard the most likely problem is that the balance of payments will deteriorate. To prevent this, a major undervaluation of the local currency should be effected. The undervaluation of domestic currency creates widespread opportunities for import replacement and new exports without completely eliminating foreign competition. The new opportunities will also be "near" existing techniques, and therefore conducive to learning as well as to increasing employment and output.[23] Protection in this manner does not distort to any significant degree, nor would it result in the creation of large scale white elephants. The fact that there are widespread opportunities created by this means is important as it results in the economy gaining experience in a large number of new activities, i.e. it helps to create transformation capacity, the capacity of an economy to move resources from one activity to another with only modest loss of productivity. High transformation capacity is one necessary condition for the emergence of the kind of economy defined earlier as the objective of development. Specializataion is a high risk policy if transformation capacity is low, and transformation must be learned, generally learned by doing. (Further discussion of all these points may be found in Bruton 1988.)

What can the United states or any foreign country do to help this process along? There are several possibilities that may be noted.

(a) The donor must be willing to import any and everything that the developing country can export at competitive prices, given its exchange rate. Where such imports harm activities in the United States, aid funds may be used to facilitate or ease their shift into new activities. The exact way that this can be done is not completely clear, but the general point is: use foreign aid funds to remove obstacles to importing into the United States. This is different from giving imports from less developed countries preferences. There would be no

[22]Forbidding foreign investment is a dangerous policy, and simply announcing that it should be done is obviously not adequate. A full defense of the view however is not possible here. A brief defense is in Bruton (1985 and 1988).

[23]Foreigh exchange, by the definition of undervaluation, will be accumulated. This, of course, is directly contrary to the foreign exchange gap notion. The point here is that undervaluation (and hence foreign exchange accumulation) is the most effective means of inducing search, learning, and productivity growth. This is the case because undervaluation results in a wide range of new investment opportunities and facilitates new exports that induce immediately applicable technical knowledge (Bruton, 1988).

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such preferences. The only advantage the developing country would have would be the undervalued domestic currency that would make exporting unusally profitable.[24]

(b) The added incentive to export provided by the undervalued exchange rate should create inducements in the developing country to search for ways to enter export markets. The economic agents in the developing country have an incentive to seek out information, data, plans of present and potential importers. Aid may be used to cover costs that an importer may have in working with an exporter from the developing country. The initiative however—and this is crucial—must come from the exporter.

(c) The strong undervaluation will, as noted, create new investment opportunities. Investment in new activities, even more than in familiar ones, is an uncertain activity. Aid may be used to provide some form of insurance against failure. The insurance must not be provided free, but could be provided at a subsidized price. There would be an educational and publicizing task, but this should be left to the agency providing the insurance.

(d) It has been argued that there is underutilized knowledge available in the less developed country, that is knowledge that could be found by economic agents on their own who engaged in search. This will at some point lead to a blank wall where some more formal, organized help is necessary. Aid may be a means by which such walls are removed or circumvented. This does not mean large scale support for elaborate research institutions, most— but not all by any means—of which have not proved effective. What is wanted are organizations that can respond to specific questions identified by economic agents seeking to produce more with given resources. This, for the most part, calls for small operations staffed by people with great practical experience in the activities of the economy, and knowledge of the society, its organizations and institutions, and history.

An illustration may help to make this point clearer. In several places in Africa one finds extensive junkyards. Such junkyards are usually divided into numerous stalls. In an individual stall will be a specific collection of parts, pieces, and things which constitute the "capital" of the junk dealers. In some instances this capital comes from elaborate, but derelict, aid projects. The dealers sell physical products, but more importantly they sell knowledge and technology. They sell ideas, and then supply an item to be used to implement that idea. The dealers are often extraordinarily clever in turning useless things into useful things in response to a specific request from a client. Clients are generally small-scale domestic enterprises and households. Evidently it makes no sense for such dealers to try to invent independently of the problems that

[24]It is recognized that retraining and similar labor programs for declining industries have not been successful. It does not seem to be beyond human capacity to make them so. Lawrence and Litan (1986) discuss a variety of dislocations that can arise as a consequence of free trade, and offer several practical suggestions on how they (the dislocations) might be dealt with.

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their clients specify. The face-to-face meetings between the searcher and the potential rescuer is about as precise and continuous as it can be.

These African junkyards are an example of a type of investment in knowledge accumulation that apparently has yeilded high returns. Similar examples are becoming increasingly documented, although no inventory seems available. They attest to the existence of an inventiveness on the part of certain members of the society, and to the existence of both the idea of search and the availability of a supply of new knowledge. The knowledge thus created is invariably "appropriate", and has emerged from within the society rather than being imposed on it from without.[25]

Jon Sigurdson (1986) makes a similar point with respect to Japan. He writes (pp. 71–72) ". . . . the production plants in Japan do not rely on a specific technology but a system under which production is gradually improved in response to requests by users and in co-operation with machinery makers." Aid used to support these indigenous research activities could make significant contributions to the growth of productivity. Aid that helps resolve a problem which people have recognized and are willing to confront is always more acceptable than is aid aimed at more general, more distant targets.

(e) Aid in the form of technical assistance has, as noted, a mixed history. One is tempted to rule it out completely, but that seems a bit extreme. Rather, it seems better to provide foreign technical assistance when it is a genuine request from a developing country, and when the latter shares significantly in the costs. Such aid should be ended forthwith when it becomes evident that the country is either not committed to its use or not able to use it.

(f) Infrastructure projects offer opportunities and pitfalls. The opportunities are those referred to earlier: such a project has a specific identity and can generally be readily carried through. It is also abundantly clear that many developing countries "need" roads, dams and irrigation systems, transportation facilities, etc. At the same time there are numerous examples of expensive projects that have had little or no effect on the productivity of the economy, and some that have been downright harmful to that productivity. Large scale projects are difficult to manage and maintain, once completed, and always seem to have consequences far beyond those contemplated in the usual benefit-cost analyses. On the other hand it is sometimes said that small scale projects are not really enough, although I wish to dispute this below.

Clearly there is a role for foreign aid here. In recent years the United States has financed very few infrastructure projects because of lack of funds. Even with available funds, the aid program might do more on supporting the maintenance and management of existing infrastructure facilities. A priority objective may well be however to find ways to ensure that the infrastructure that is constructed is more productive than has been the case over the past, and

[25] I owe this example to my former colleague Robert Schneider. For other examples and a further development of this point see Freeman in Williams, 1973.

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to resist the appeal of supporting giant infrastructure projects just because they can often be done fairly expeditiously.

Aid may be exceptionally helpful on small scale, very labor intensive infrastructure projects. In rural areas, in particular, there are opportunities to organize labor—underemployed generally or seasonably idle—to construct roads, bridges, water control devices, etc. Aid funds can be used simply to pay wages to the workers on such projects. This is essentially a means of providing the liquidity to a government to finance the activities. Such use of aid has the further advantage of providing income to some of the very poorest groups in the country. These projects will be small, but could be numerous. If they get too big, the organizational problems become unmanageably severe.

(g) Aid to facilitate the implementation of policies that are aimed directly at employment creation and productivity growth among low income people may pay off handsomely. Three examples will help illustrate this point.

(i) In Egypt the Ministry of Agriculture has detailed data on most farms. The Egyptian government also sets the price for a number of farm products. A policy that rewarded increased yields with higher prices would surely induce search for ways to get yields up year after year. With such a policy the government may need to do very little else to bring about a more dyamic agriculture.

(ii) A similar kind of policy may be designed for employment in manufacturing. Tax rate adjustment or a direct subsidy might reward a firm that increased the labour intensity of its operations from year to year. For example, a formula such as $W_0\ (E_1 - E_0)/\Delta VA$ measures the increase in the share of the increment of value added (ΔVA) due to the increase in employment ($E_1 - E_0$) with no change in wage rates (W_0). Evidently the higher this ratio the greater the employment effects and the greater the reward. Note also that increased productivity with no change in wage rates means that unit labor costs are reduced and this will provide an incentive to hire more labor.

(iii) In many developing countries, it is advantageous to keep food prices low in urban areas. This is frequently done in a way that penalizes agriculture, either by taxes or price controls on agricultural products. In certain situations aid may be used to subsidize the food prices in urban areas at the same time that farmers receive high prices for their output. A policy of "buy high, sell low", made possible by aid will permit strong incentives for agicultural development and still keep urban prices low.

There are other examples that could be noted but these three make the general point clear. Aid that is used to reward increased yields and increased employment not only helps the low income groups directly, but also contributes to the creation of a tradition on search and learning and trial and error in the community.

(h) Where a country runs into an unexpected difficulty for which it cannot be held responsible while pursuing a range of policies that conform to those

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discussed above, a lump sum loan (possibly a grant) may be made immediately with no limitations on its use and without exhortation or arm twisting.

Evidently there are many more issues which one would have to confront if the approach suggested above were to be taken seriously. The basic point can be stated simply: the developing countries must themselves create a demand for aid, and the donor countries stand prepared to meet that demand. This general approach, it is claimed, not only serves real development objectives effectively, but also resolves some of the practical problems referred to above: aid is provided to those who demand it.

There are two general points that follow from these examples. The first is that this second approach not only pays little heed to catching-up, but it also plays down the notion of international competitiveness. The undervaluation will encourage exports, especially new exports, but more fundamentally it provides the protection and the incentives that lead to searching and learning and more effective transformation capacity, the capacity to seize and to create opportunities. It therefore decreases dependence on foreign trade, or, more accurately perhaps, it recognizes that foreign trade is extremely risky until transformation capacity is extensive. It is a means of creating independence and self-reliance and increased productivity. It is a means of creating a base, a foundation from which change may proceed in a reasonably untraumatic fashion. This can lead to international competitiveness at "correct" exchange rates at some point for an economy that has allowed the reflective choices of the community to be found and realized.

The second point refers to the possibility that implicitly in this approach we are asking the developing countries to "reinvent the wheel". To some extent this is correct simply because it is the way to learn. Albert Hirschman (1987, p. 24) writes that

> [H]umans have to reinvent a great many things—from learning how to walk to the proper use of language—and this intensive practice in reinvention and re-creation is surely a necessary, although not sufficient, condition for the subsequent generation of genuine creativity. The problem in industrial research and development is not how to minimize reinvention but how to achieve the best possible balance between reinvention and taking advantage of the existing stock of knowledge for the purpose of accelerating both industrialization and creativity.

This Hirschman statement and many of the preceding arguments remind us that development is necessarily a slow process. Get rich quick schemes do not work. The emphasis on searching and learning, on productivity growth, on endogeny and institutions also helps make clear that genuine social and economic change that produces a continuing increase in social welfare is a slow, long term process. Therefore aid is a long term matter, and it is essential to establish it on a solid institutional basis.

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IV

The last question is at hand: Is the United States doing enough? The answer seems abundantly clear: No we are not. We must do more. We need however to be careful. Simply appropriating more money to the Agency for International Development without making any modification in other aspects of the program might help here and there, but would do little to improve the general effectiveness of our help. Indeed in a variety of ways simply more aid money could be harmful. The most important failure is a failure of the commitment of time and energy on the part of Congress and administrative leaders to inform and educate themselves on how we can in fact do more. The first task therefore in doing more is this recognition of the importance of a greater role for the United States. If this commitment can be established, then it should be possible to develop an approach to aid built along the lines discussed in Section III.

If we do commit ourselves in this way and find ways to make our aid efforts more effective, then it is more or less certain that more money can be used productively. Anywhere aid can be effective, there should be aid. The surveys and other evidence indicate clearly that most Americans would welcome an opportunity to be of greater help to the world's poor. Let me repeat the point with which I began: the search for justice is a fundamental objective of any worthy society, and to help people everywhere find a way to eliminate their poverty is a basic component of justice.

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PREFERENCES, REAL MARKETS AND ECONOMIC DEVELOPMENT[1]

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This paper assumes that market information is asymmetric due to the division and specialization of labor. Failure to account for this may well explain why the debate between protagonists and opponents of competitive markets has remained sterile for so long. This paper departs from the usual rhetorical approach and reexamines this debate within the framework of a general equilibrium model of pure exchange under asymmetric information and nonconstant-nonidentical consumers to uncover the beneficial effects as well as the pitfalls of *real* markets. The model provides plausible explanations for the stylized facts about *real* markets and sound underpinnings for economic development policies.

Introduction

The recent demise of central planning in Eastern Europe is being upheld in some quarters as the final vindication of the theory of free markets. But if history has taught us anything is that it will not be long before abuses of all sorts committed in the name of free markets bring to the forefront, once again, the age old debate between protagonists and opponents of free markets. In a sense, it is unfortunate that a topic that has absorbed so much intellectual energy for so long a time could remain plagued with so much confusion as we are about to frantically embark on a new programme of dismemberment of regulatory policy. It may well be that the source of this confusion is the undue emphasis placed on government interventions in perfectly competitive markets. So let us emphasize right at the outset that governments intervene in *real* markets and, therefore, the pros and cons of such interventions cannot properly be assessed in the absence of a theory of *real* markets. Hence the insistence on dwelling on the merits of imaginary or perfectly competitive markets could only have caused the debate to be misguided from the start and possibly kept it sterile ever since.

Meanwhile, claims and counter claims, accompanied by a notable lack of success also, have left development economists hesitant and unsure of their own policy recommendations. The social implications of this debate being of paramount importance, however, there is then an urgent need to anticipate and

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prepare for a major reorientation. This paper is a modest first step in that direction.

We begin our discussion with the theory of general equilibrium (GE). Being the paradigmatic core of the theory of competitive markets, GE appears as the ideal framework form uncovering the beneficial effects as well as the pitfalls of real markets. Only then will we feel comfortable enough to offer advice and some underpinnings for developmental policy.

GE is the structure through which one explains how competitive markets, consisting of countless selfish agents, pursuing their private interests and greed, are somehow guided by an inherent force which inevitably pilots such markets toward a coherent state of balance. Some find it truly remarkable that such a state would exist, would be unique and stable and, at the same time, would yield an allocation of social resources which is said to be efficient by some criterion. Moreover, that such markets should possess the self-regulating power to spontaneously reach that state without any assistance is for them all the more astounding. Consequently, in accepting this result, most of the so-called mainstream economists come to view GE as the culmination of the intellectual contribution that economic theory has made to the general understanding of social processes.

However, not everyone thinks so highly of GE. Market interventionists, for example, have, to paraphrase Datta-Chaudhuri [1], in many instances and with help of sound analytical constructs shown that, in the presence of what is usually called "market failures", the market system is unable to reach on its own anything that could be termed socially efficient. Free market protagonists, on the other hand, have naturally attempted to minimize the impacts of such failures by appealing to the First Fundamental Theorem of Welfare Economics,[2] and by pointing to many instances of "government failures". For sure, government failures are not that rare. The massive collapse of centrally planned economies in Eastern Europe, mentioned earlier, is perhaps the most blatant example. But there are also many instances where government interventions seem to have improved over would-be market outcomes; the successes of the Asian Newly Industrialized countries attest to that. In addition, in order to reach its elegant result, GE assumes away all the blatant cases of market failures present in all real markets, such as externalities, increasing returns to scale in production, non-atomlessness of agents, asymmetry in information sets, etc. Thus, the GE mainstream economists discuss with their students, or the one that protagonists point to in the debate, is a purely axiomatic construct that does not

[2]The Theorem asserts that if there are enough Arrow-Debreu markets, including futures and contingent claims markets, if all agents behave competitively, and if an equilibrium exists, then the resulting allocation is Pareto optimal. However, most mainstream economists now recognize that it is extremely difficult to compel agents to behave competitively while in the process of adding Arrow-Debreu markets.

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address the concern of interventionists. This then seems to explain why neither side in the debate was able to convince the other.

We feel, however, the GE can explain most of the salient features of real markets once some of its most damaging assumptions, such as symmetry in information sets and identical agents with preferences that are fixed across time [see e.g. Weintraub, 1985] are dropped. Recently, Scitovsky [10] has examined this issue in a similar way and arrived at the conclusion that dropping the assumption of symmetry of information weakens GE but explains the success of real markets. However, he leaves the impression that the success of real markets stems only from a more complete set of information on the part of sellers. Here we show that besides the possession of, it is the manipulation of information which is a valid control instrument in real markets. But this, at once, suggests some forms of checks and balances. Therefore, the purpose of the paper is to show indirectly, at least, in exactly what way the "invisible hand" can be helped by the "visible hand" of representative governments in bringing about the goods, services and amenities that have come to be associated with society's welfare in general.

In Part II, we consider a GE model of pure commodity exchange without the two unrealistic assumptions referred to above. And against this backdrop, we examine the essential role of asymmetric information in explaining the functioning of real markets. In Part III, we catalogue their most salient implications, and in Part IV, we show how appropriate representative government interventions may indeed help market outcomes and thereby the process of economic development.

Competition and the Market Process in a General Equilibrium Model of Pure Exchange

In order to examine the gist of competition and the market process in general, we begin by considering a pure commodity exchange model, the reason being that such a model is more tractable analytically than when production is included, and it amply suffices to guide the subsequent discussion.

On the assumption that preferences, quantities and prices can be modeled as real numbers, we begin by analyzing a schematic pure exchange economy consisting of two non-empty and countably infinite sets D and E of agents and goods, respectively; agents are indexed by $i \in D \in \mathbb{R}^n_+$ goods are indexed by $j \in E \in \mathbb{R}^m_+$. The consumption bundle of good j, $\forall j$, chosen by consumer $i(q^i_j)$ is acquired at strictly positive prices (p_j), $\forall j$ Each consumer maximizes some utility function $g : \mathbb{R}^m_+ x(0, b) \Rightarrow \mathbb{R}$ which shows explicitly how i' preferences for good $j(\alpha^i_j(\cdot))$, $\forall$ i, j, contributes to his utility. Thus $\mathbf{q}^i \in \mathbb{R}^m_+$, $p \in \mathbb{R}^m_{++}$, $\alpha^i(\cdot) = (\alpha_1(\cdot), \alpha_2(\cdot), \ldots, \alpha_m(\cdot)) \in \mathbb{R}^m_+$, but $\alpha^k_k(\cdot) \neq \alpha^i_j(\cdot)$ for $k = 1, 2, \ldots, n = 1, 2, \ldots, m, k \neq i \neq j$, $\sum_{j \in E} \alpha^i_j(\cdot) > 0$ and $\alpha^i_j(\cdot) / \sum_{j \in E} \alpha^i_j(\cdot) < 1$. The

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fixed endowment of good j held by i is $\omega_j^i \in \omega^i \in \mathbb{R}_+^m$; q_j^i is the demand of i for j; $\omega_j = \sum_{i \in D} \omega_j^i$, $\forall j$, is the total supply to the market.

Put differently, agents are non-identical in the sense that the weight agent k places on good j is different from the weight agent i places on the same good. Later on, we will have more to say about how the value of $\alpha_j^i(\cdot)$ is determined. For now, it suffices to presume that, contrarily to utility, at any point in time, the distribution of α^i can be observed.[3] Moreover, as the income of i is the imputed market value of his initial endowment, until an equilibrium price vector emerges, consumer income is a variable. For any utility function which is linear in logarithms like $U^i = \prod_{j \in E} q_j^{\alpha_j^i}$ or $U^i = \log(K \prod_{j \in E} q_j^{\alpha_j^i})$, where $\alpha_j^i(\cdot) \geq 0$, and using the notation $(1 \times n)$ and $(m \times 1)$ to describe a row and column vectors, respectively, the maximization of U^i yields the demand of i for j as

$$q_j^i = (\alpha_j^i(\cdot)/p_j \sum_{j \in E} \alpha_j^i(\cdot))\,(\omega^i \mathbf{p})$$

where $\omega^i(1 \times m)$ and $\mathbf{p}(m \times 1)$. Summing up over $\forall\, i \in D$ gives the market demand, and the removal of ω_j yields the Walrasian tatonnement for good $j(\xi_j(\cdot))$.[4] These operations are standard, but here one must bear in mind that consumers are non-identical as we proceed below to generalize them over the sets D and E.

However, beforehand we consider some preliminaries. Let α_j^i, $\forall\, i$, and ω_j^i, $\forall\, i$, be two different points in $\mathbb{R}^{1 \times n}$ and ω_j^{iT}, $\forall\, j$, be a point in $\mathbb{R}^{m \times 1}$. Then the subspaces spanned by the rows (α_j^i and ω_j^i) are, respectively, the row spaces of two real square matrices: $\mathbf{A}(= (\alpha_j^i)) \in \mathbf{M}_{(m \times n)}$ and $\mathbf{W}(= (\omega_j^i)) \in \mathbf{M}'(m \times n)$ and ω_j^{iT} is the column space of $\mathbf{W}^T \in \overline{\mathbf{M}}(n \times m)$. In other words, the frequencies of all consumers' preferences and their initial endowments form the matrices A and W, while the matrix $\mathbf{B} = \mathbf{A}\mathbf{W}^T \in \hat{\mathbf{M}}(m \times m)$ is the product of A and the transpose of $\mathbf{W}(\mathbf{W}^T)$, whose kjth entry is $b_{kj} = \sum_{i \in D} \alpha_k^i \omega_k^i$.

With these preliminaries, we now posit:

[3]In other words, a value of $\alpha^i{}_k$ higher than $\alpha^i{}_j$ indicates that i perfers good k over j. This approach is consistent with the Revealed Preference Theory due to Samuelson [7], and to the approach advocated by Hildenbrand [4].

[4]There are, of course, alternatives to Walras' tatonnement, such as the non-tatonnement process of Hahn-Negishi [4] type, the Edgeworth process, the simplicial technique, Smale's [11] global Newton method, etc. It is now widely accepted that these, though seemingly more efficient, lead to the same result. Moreover, the simplicial technique, for example, is only a computing device, while no economic interpretation can be found for the inverted Jacobian matrix of excess damand used by Smale.

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$$f : \hat{\mathbf{M}}(m \times m) \Rightarrow \mathbf{p}$$
$$\hat{g} : \mathbf{p}(m \times 1) \Rightarrow \xi(\cdot) \tag{1}$$

as two point-point mappings, where $\hat{g}$ is derived from a global mapping of all utility functions. There exists then, for utility functions which are continuous on $\mathbb{R}_+$ and C^2 on $\mathbb{R}_{++}$, a composite mapping:

$$h : \hat{\mathbf{M}}(m \times m) \Rightarrow \dot{p}, \tag{2}$$

where the dot refers to differentiation with respect to time.

Using the utility function $U^i = \log K + \sum_{j \in E} \alpha_j^i(\cdot) \log q_j^i, \forall i$, where $K \geq 1$, Walras' tatonnement takes the form:

$$\mathbf{p} = \mathbf{dg}(1/p_1, \ldots, 1/p_m)\,[\mathbf{B} - \mathbf{dg}(\omega_1, \ldots, \omega_m)]\mathbf{p} \tag{3}$$

where $dg(1/p_j), \forall j$, and $dg(\omega_j), \forall j$, are two diagonal matrices formed from the reciprocals of prices and from total initial endowments of goods, respectively, and $\mathbf{p}$ is, it will be recalled, a point in $\mathbb{R}_{++}^{m \times 1}$. Naturally, the validity of (3) rests on whether or not there exists a $\mathbf{p}^*$—for given preferences and initial endowments—which equates supply and demand (existence); and whether or not starting from any $\mathbf{p} \neq \mathbf{p}^*$, the system converges to the singular point $\mathbf{p}^*$ as time runs forward (asymptotic stability). In order to probe further, we first write out the Jacobian matrix (J) of (3) as:

$$J = \begin{bmatrix} -(\sum_{j=1}^{m} p_j b_{1j})/p_1^2 & \cdots & b_{1m}/p_1 \\ b_{21}/p_2 & -(\sum_{j=2}^{m} p_j b_{2j})/p_2^2 \cdots & b_{2m}/p_2 \\ b_{m1}/p_m & \cdots & -(\sum_{j=1}^{m-1} p_j b_{mj})/p_m^2 \end{bmatrix}_{\mathbf{p} = \mathbf{p}^*} \tag{4}$$

System (3) cannot be solved as written because Walras' Law makes one of its equations redundant. However, since the mapping h is homogeneous of degree zero, the system can be normalized by letting, say, $p_m = 1$. In its normalized form, (3) always yields a unique solution $\mathbf{p}^*$. The same argument applies to (4). By Walras' Law, the last successive principal minor of (4) is zero, implying marginal stability. But here, normalization allows the deletion of the last row and column of (4). The resulting $(m-1) \times (m-1)$ matrix, denoted $\hat{J}$, like (4), remains Metzlerian. Therefore, starting from any nonnegative initial price vector, the system is guaranteed to preserve the nonnegativity of the state variable ($\mathbf{p}$). Then, drawing on the direct correspondence which exists between existence and stability in positive linear system, it can be inferred that, regardless of the dimension of (4), since $\mathbf{p}^*$ exists, the system is stable. In fact,

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$\mathbf{p}^*$ and the eigen-vector associated with the Frobenius-Perron root of J or J differ only by positive scalar.

Having shown that (3) is a valid representation of a neo-classical economy, we now turn toward what it really implies. Namely, for a given $\mathbf{W}$,

$$\left\{\sum_{i\in D}\alpha_1^i(\cdot), \sum_{i\in D}\alpha_2^i(\cdot), \ldots, \sum_{i\in D}\alpha_m^i(\cdot)\right\}^h \Rightarrow \{p_1, p_2, \ldots, p_m\}; \tag{5}$$

that is, the set of preference frequencies, summed up over all i for good $j, \forall j$, is mapped point to point into the jth component $((p_j), \forall j)$ of the equilibrium price vector $(\mathbf{p}^*)$ under h.

Some might see the requirement that g be of the Cobb-Douglas type as a limitation. However, it should also be borne in mind that, at this point in time, economic theory can only stress the desirable properties of utility functions but cannot predict the type of utility functionals that will be observed, nor can it offer any hope of eventually observing any such functionals. Consequently, it is not at all sure that we have traded off some generality although we have gained handsomely in terms of a number of advantages that (3) offers. To wit:

(a) No limit is placed on the dimension of the fundamental matrix (the RHS of (3)) as the set E is countably infinite;

(b) the price vector is not inferred, but found, following observations α's and ω's; and only observations on these are needed for meaningful comparative analyses;

(c) consumers need not be identical for closed-form solutions, nor do they have to consume every good as $\alpha_j^i(\cdot)$ can be zero for some j;

(d) the gross substitutability assumption is superfluous as the Jacobian matrix of excess demand (4) is Metzlerian, and

(e) no structural instability in the sense of Scarf [9] can arise in this formulation.

All of these can be seen by inspection and therefore do not need elaboration, except perhaps for (e). In that connection, it should be recalled that Scarf's first example posits for each i a utility function of the type $U^i = \min\{q_j^i\}_{j=1}^m$, some j. Though there is no economic rationale nor observations on such a behavior, this utility function is to this date a thorn in the body of neo-classical economics because of the structural instability it gives rise to. Whereas, in the above construct, Scarf's first example can be represented as follows:

$$\alpha_1^1 = .5 \quad \omega_1^1 = 1 \qquad \alpha_1^2 = 0 \quad \omega_1^2 = 0 \qquad \alpha_1^3 = .5 \quad \omega_1^3 = 0$$

$$\alpha_2^1 = .5 \quad \omega_2^1 = 0 \qquad \alpha_2^2 = .5 \quad \omega_2^2 = 1 \qquad \alpha_2^3 = 0 \quad \omega_2^3 = 0$$

$$\alpha_3^1 = 0 \quad \omega_3^1 = 0 \qquad \alpha_3^2 = .5 \quad \omega_3^2 = 0 \qquad \alpha_3^2 = .5 \quad \omega_3^3 = 1$$

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$$M = \begin{bmatrix} .5 & 0 & .5 \\ .5 & .5 & 0 \\ 0 & .5 & .5 \end{bmatrix} \quad M^{-T} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix} \quad \hat{M} = B = \begin{bmatrix} .5 & 0 & .5 \\ .5 & .5 & 0 \\ 0 & .5 & .5 \end{bmatrix}$$

The excess demand equations are:

$$\xi(\cdot) = (1/p_1)[(\tfrac{1}{2}\,\omega_1^1 - \omega_1^1)p_1 + \tfrac{1}{2}\,\omega_3^3 p_3]$$

$$\xi(\cdot) = (1/p_2)[\tfrac{1}{2}\,\omega_1^1 p_1 + (\tfrac{1}{2}\,\omega_2^2 - \omega_2^2)p_2] \quad \Rightarrow p* = (1, 1, 1)^T$$

$$\xi(\cdot) = (1/p_3)[\tfrac{1}{2}\,\omega_2^2 p_2 + (\tfrac{1}{2}\,\omega_3^3 - \omega_3^3)p_3]$$

Then, the allocation and Jacobian are:

$$q_1^1 = 1/2 \quad q_2^2 = 1/2 \quad q_1^3 = 1/2$$

$$q_2^1 = 1/2 \quad q_3^2 = 1/2 \quad q_3^3 = 1/2$$

$$J = \begin{bmatrix} -1/2 & 0 & 1/2 \\ 1/2 & -1/2 & 0 \\ 0 & 1/2 & -1/2 \end{bmatrix}$$

Denoting the trace and the determinant as Tr and det, respectively, it can be seen that both J and $\hat{J}$ are Metzlerian and Tr $(\hat{J}) < 0$, det $(\hat{J}) > 0$; thus Scarf' equilibrium allocation obtains without the embarrassment caused by structural instability.

Another interesting aspect of (3) is that the vector field possesses a singular point denoted **p***. This means that the only difference between points in the immediate neighbourhood and those far from **p*** is the speed of adjustment. With the assurance that the integral curves of the field are not deformed by distance, we can now inquire into the question of how the location of **p*** varies as a result of variations in the α's and the ω's regardless of the magnitude of changes. But to further simplfy, we keep the ω's constant and focus on α's.

As indicated at the outset, market information is always asymmetric until the limiting case of perfect competition is reached, if ever. It can be seen intuitively that due to the *division and specialization* of labor, the seller of any new good k always possesses more information about k than any would-be buyer of k; and so it is until good k becomes completely standardized, *i.e.* when information sets are in a state of balance. On the other hand, buyers of good k will always prefer more rather than less information on k; for the more information each buyer has, the more representative are the α's, and the better then are market outcomes. But, there is a catch. The more information the buyer believes he is receiving from a seller, the more dependent on that seller he becomes, and the more his preference for the good sold by the seller is likely to increase. This dependency is the source of the market power of the seller, as alluded to in Scitovsky [10]. It remains then to show, within the present

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formulation, how real benefits accrue to the seller engaged in the process of releasing information- favourable to his ware.

Perhaps we should add at this juncture that economists have placed undue emphasis on the study of trajectories in the Walrasian field (see note 3). No additional information is to be had from such an effort when the vector field possesses a unique singular point. It is more fruitful to suppose that if the system is observed at all, it must be at or near the singular point. Consequently, attention should more properly be focused on how it reacts to exogenous disturbances. In this regard, assume that α_k^i depends on some information index, I_k^i, which reflects the amount of information about k held by i. That is: $\alpha_k^i(I_k^i)$, where the first derivative $d\alpha_k^i(\cdot)dI_k^i > 0$. Then is follows from (3) that around the equilibrium point:

$$e_{Dk} = -\sum_{j \neq 1}^{m} p_j b_{kj} \Big/ \sum_{j \in D} p_j b_{kj} < 1, \forall k, j, \tag{6}$$

where e_{Dk} is the demand price elasticity. Total differentiation of excess demand functions shows:

$$\partial|e_{Dk}| / \partial I_k^i = p_k \left[b_{kk} \sum_{j \neq k}^{m} p_j \omega_j^i - \omega_k^i \sum_{j \neq k}^{m} p_j b_{kj} \right] \Big/ \left(\sum_{j \in E} p_j b_{kj} \right)^2 < 0, \forall k, j; \tag{7}$$

$$\partial \left| e_{Dk} \right| / \partial I_k = \sum_{i \in D} \partial \left| e_{Dk} \right| / \partial I_k^i < 0, \forall k, j; \tag{8}$$

$$\partial p_k / \partial I_k^i = p_k \sum_{j \in E} p \ \omega_k^i (\partial \alpha_k^i / \partial I_k^i) \Big/ \sum_{j \neq k}^{m} p_j b_{kj} > 0, \forall k, j; \tag{9}$$

and

$$\partial p_k / \partial I_k^i = \sum_{i \in D} \partial p_k / \partial I_k^i > 0, \forall k, j. \tag{10}$$

Thus by (3), market outcomes depend on preferences and initial endowments. Preference weights (or frequency distribution) vary in the same direction as information indices. Increases in information increase $\alpha_k^i(\cdot)$, $\forall k$, reduce demand elasticity in modulus by (7), and increase p_k by (9). These effects are stronger in the aggregate (see (8) and (10)), proving our claim that sellers derive benefits by giving or even by acting as if they are transferring information to a buyer and to all buyers, because, in the process, they gain market power.

Some Implications

It will now be shown that this simple model of pure exchange, by allowing for asymmetry in information and nonidentical consumers, is consistent with a number of stylized facts about real markets, most of which are discussed in

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Scitovsky's but not demonstrated. That is, as long as information sets are out of balance, the model implies:

1. There is a compelling advantage for the seller of good k to attempt to share information with buyers that are always well disposed to receive information. Such attempts may take various forms, and may be fake or genuine. But regardless of their nature and forms, if they are believed by consumer i, they lead him to increase his preferences index for k relative to other goods. For fixed supply, the price of k increases, the modulus of individual demand price elasticity as well as that of market demand for k decreases, thus conferring market power to the seller of k;
2. as sellers' and buyers' information sets approach a state of balance, the conveying potential approaches zero; $\alpha_k^i(\cdot)$ falls to a lower fundamental value which may be zero. Then the monopoly rent associated with good k approaches zero, and p_k approaches the marginal cost of putting k on the market;
3. the eventual disappearance of market power is the spur of product differentiation, innovation and the introduction of entirely new products. These activities are financed by rents initially reaped from k, and their aim is either to preserve or to create new monopoly rents;
4. the observed responses of consumers to information realised—by means of advertising, say—are quantity signals to sellers. Such signals and the potential of additional monopoly rents guide and encourage additional investments, which may lead to scale enconomies, followed by mass marketing, and increased availability at lower but still above marginal cost prices;
5. even if repeated purchases and the experience derived therefrom may, over time, balance information sets, new and better products may not be forthcoming if sellers have no competition (captive markets). As points (3)–(4) above involve some stress and risk, a sufficient condition for their realization is the existence of monopolistic competition;
6. the more developed is the exchange economy, the more specialized is labor, the more frenetic is the attempt to share information, and the more dynamic are markets;
7. as pointed by Walras, the coordinates of the singular point $\mathbf{p}^*$ in m-dimensional space is constantly changing due to changes in preferences and initial endowments. This explains the main theoretical difference between markets and central planning. That is, markets incorporate such changes in continuous time, whereas even if planners were able to forecast their direction and magnitude, they could only correct the initially calculated price

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vector at discrete intervals. In addition, often central planning is devoid of the system of rewards and penalties inherent to competitive markets. What Kornai [5] calls the "soft budget constraint",[5] for example, may be sufficient to thwart sellers'—or producers'—stimuli for quality consciousness and cost reductions. In that connection, it is not at all exaggerated to add that the lack of self-discipline and decentralized decision-making may give rise to excessive monitoring, leading in the end to a fat, lazy and abusive bureaucracy.

While not exhaustive, the above constitutes the most salient observed features of real markets, and also for which the theory of perfect competion has no explanation.

The Underpinning of Public Policy

From the above argument, it can reasonably be construed that the functioning and the dynamism of real markets rest largely on the asymmetry of information, which in turn explains many stylized facts about markets, such as innovations, product differentiations, monopolistic competition, advertising, etc. These also shed light on the often observed sellers' behavior. For example, it is to their advantage to exaggerate or bias the information released to buyers. As bias claims impact on market outcomes, there is then a need for policies aimed at keeping the process of information exchange ethical, truthful and safe; as regards safety, for example, think of pharmaceutical products.

Imagine in addition that $\alpha_j^i = v(I_j^i, m_j^i)$, where first derivatives $v_I' > 0, v'_m > 0$ and m stands for amenities. Then we immediately have an explanation for the often observed attempts of sellers to give back a part of their profits, not by reduced prices, but by offering a variety of amenities and services which consumers will always prefer to have. This is what is usually referred to as non-price competition, whose attendant consequence is to bias preference even more. There is, in this regard as well, a need for policy promoting the truthfulness of such offerings.

In order to create and maintain monopoly rents, it is said that sellers are driven to innovations, research and the development of new products. It goes without saying that they must somehow be assured of being able to reap enough rents to pay back R&D and additional investments. This calls for some policy arrangements such as patent legislations assuring them at least the market return on innovative or new technologies.

Finally, given the existence of monopolistic competition, it is not difficult to see that it calls for entrepreneurship, risk taking, and up front investments. These being stressful activities, what could be safer and simpler then for sellers

[5]Meaning that publicly owned enterprises are not disciplined by the fear of bankruptcy since all their losses are borne by the government.

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to attempt to block entry, to collude, and to use strong arm tactics? Closely related to restraints to competition are the well-known attempts to buy political influence either to prevent the enactment of or to influence the scope of policies which the public may deem necessary. In the absence of well thought of anti-trust policies, Murphy's Law asserts that all these behaviours will be displayed.

Summary and Conclusions

We begin by dropping one of the fundamental assumptions of the theory of perfectly competitive markets, namely, perfect information—fixed and identical preferences are for closed-form solutions—and we arrive at a somewhat paradoxical result. What the perfectly competitive model condemns as "bad", i.e., asymmetric information and its attendant monopoly rents, turns out to be the propellers of real markets, explaining the continual flow of new and improved products, sometimes at lower prices, satisfying increasing and varying wants. This ostensibly constitutes the main benefits of market economies. However, the attempt to keep the propellers turning can, at the same time, easily go astray and become an inducement for sellers to cheat and to engage in unethical practices. Because of this inherent vice of real markets, adequate public policies become necessary.[6] In other words, for the *invisible hand* to deliver the goods, services and amenities that have come to be associated with market economies, it must be helped by the *visible hand* of representative governments.

Surely, government policies may turn out badly mostly when they fail to account for the paradoxical nature of real markets, or when they only reflect the interests of dominant groups. However, when they are designed to improve market outcomes, as in the cases of the Asian Newly Industrialized countries (see Westphal [13], Datta-Chaudhuri [1], Greenwald and Stiglitz [2]), the results speak for themselves.

Before concluding, let us examine, in the light of the present analysis, two other related points. They are the concept of efficiency connected with markets and the so-called compatibility thesis. What they broadly mean is that: (a) no economic system can possibly be efficient unless it is organized around totally free markets, and (b) market capitalism and liberal democracy are twins and uniquely compatible concepts. It should first be emphasized that the concept of efficiency is vacuous without the specification of a criterion by which it is to be assessed. In production, it refers to least cost output realized in a space-time configuration. It is therefore a variable concept based on an unexplained production plan. Within the context of a pure exchange economy, as is the case here, efficiency can only mean agreement of agents' preferences and market prices as shown in (5). This is not only all there is to it but one should also bear

[6] It is easily seen that when production is included in the model, the profit incentive and often inadequate knowledge about the long term impact of product transformation may, borrowing an expression from Georgescu-Roegen [3], accelerate society toward the entropy state.

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in mind that, at any point in time, preferences are taken as given. In the compatibility thesis, on the other hand, citizen sovereignty depends on full information to bring about not only representative choices but true popular accountability; without full information, liberal democracies are but shams; whereas markets seem to function well under incomplete information. At full information, they attain a stationary state that may be associated with the economist's concept of perfect competition. At such a state, however, markets cease to function, something sellers would want to avoid at all costs. In the end analysis, therefore, let us say that while dogmas are all too often counterproductive, the perception of those involved in the process of economic development—theorists, governments, etc.—should not, on the other hand, be blurred by buzz words and false claims.

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TECHNOLOGICAL INNOVATIONS IN THE IRON AND STEEL INDUSTRY AND ITS IMPACT ON THE ECONOMIC DEVELOPMENT OF INDIA

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I. Introduction

The Iron and Steel Industry in general occupies an important position among the manufacturing industries in India because it contributes more than 10% of the total output and nearly 8% of employment in the manufacturing sector. Furthermore, in terms of total investment in the manufacturing sector, it is one of the most important industries. For example, while the Government of India had invested around Rs. 15000 crores in the public sector integrated steel plants, viz. Bhilai Steel Plant (BSP), Rourkela Steel Plant (RSP), Durgapur Steel Plant (DSP), Bokaro Steel Plant (BSL), and Indian Iron & Steel Company Ltd (IISCO), upto 1984–85, the private sector integrated steel plants, namely, Tata Iron and Steel Company Ltd (TISCO) has also invested a huge amount. In addition to these direct investments, its linkage sectors like coal, iron ore, refractories and other input suppliers, by-product users etc. had undertaken huge investment too to cater to the needs of the ISPs. In spite of these huge investments as well as other governmental incentives to this crore sector, the integrated steel plants (ISPs) were beset with a number of problems during the seventies and early eighties, such as low growth rate, low level of productivity, low capacity utilization, low profitability, higher cost of production, deteriorating quality of steel, poor availability of inputs and raw material, etc. In order to overcome these difficulties the steel plants have adopted a number of innovative steps like modernization and capacity expansion. In this process the steel industry had proposed to increase its output level from 8.79 million tonnes (MT) in 1984–85 to 25 million tonnes by the turn of present century with the ISP's share being more than 75% in the economy.

In this paper we have attempted to critically examine the impact of those proposed technological innovations on the economic development in India. The effects of those new technologies have been gauged in terms of their direct and indirect contributions in the output market as well as in the labour market.

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II. Corporate Strategies of the ISPs and the Consequent Technological Innovations

Owing to the Government of India's emphasis on improving the performance of the public sector units in the eighties and also in view of the Sixth Five Year Plan (1980–85) strategy of higher production and productivity by application of updated technology, the Steel Authority of India Ltd. (SAIL) which is the leader of the steel industry in India had evolved a corporate strategy for their ISPs to increase their production and productivity and to reduce their costs through a blend of modernization and capacity expansion schemes. Accordingly, the SAIL had set the following corporate missions:

— to achieve rapid expansion and optimisation of its production capacity;

— improvement in technology, profitability and commercial competitiveness;

— self-reliance in resources;

— improved quality of products and better customer service.

Thereby it was envisaged to increase the production of saleable steel from the 1984–85 level of 7.19 million tonnes to 15.2 million tonnes (which would constitute around 70% of the total production in the country) by the turn of the century.

Similarly, TISCO, the largest steel plant in the private sector, had also proposed a corporate strategy of modernization and capacity expansion whereby they are expected to double their capacity by 2000 AD.

To accomplish the corporate strategy the ISPs had proposed to adopt some major technological innovations, such as:

— maximum possible reduction in the consumption rate of the raw material through the quality upgradation and improvement in yield.

— development of large unit sizes of the production units, viz. coke oven batteries, sinter machines, blast furnaces, BOF converters and hot strip mills, which would be in tune with the world standards. This development process would involve import of new technology from the technologically advanced countries like Japan, West Germany and USSR.

— adoption of alternate technology to conventional BF-BOF route of steel-making. These efforts would lead to the development of DR-EAF route of steel-making. This technological route provides opportunities to set up small and economically viable integrated steel plants based on the use of non-coking coal or natural gas as the main fuel.

— progressive reduction of energy consumption levels by about 30%.

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— reduction in ash contents of coking coal from around 31% level in 1984–85 to 17% in 1989–90 and 15% by 2000 AD.
— improvement in use of refractories and refractory link technology.
— automation and computerisation.

The above technological innovations would be implemented in three different phases, i.e., phase one spreading from 1984–85 to 1989–90, phase two upto 1994–95 and phase three upto 2000 AD.[1]

III. Impacts of the Technological Innovations

(a) *Impact on the output market*

In this sub-section we have examined the impact of technological innovations of the ISPs by adopting a general linkage approach. The linkages are investigated in terms of ISP's direct contributions in its own product and by-product markets as well as the indirect contributions in the backward and forward linkage markets. The backward linkages will be generated in the upstream industiral activities like raw materials (such as coal, iron ore, limestone, dolomite, and manganese ore) and inputs and intermediary products like machinery, spare parts, chemicals, abrasive materials, automobile parts, and refractory materials, etc. On the other hand, the forward linkages are expected to be generated through the flow of its main products, such as, bars and rods, structurals, railway materials, plates, HR sheets/coils/skalp, CR sheets/coils, G.P./G.C. sheets, electrical steel sheets, tin plates, pipes and semis, pig iron and by-products like ammonium sulphate, tar products, and benzol products, to the various sectors/activities of the economy, i.e. where these products are used as inputs or intermediary products.[2]

A comparative analysis of growth of output (in terms of main products and by-products) vis-a-vis the GNP growth rate in the country depicts that prior to eighties the steel output has increased at a higher rate than the GNP. However, in the early eighties the growth rate of the steel output fell short of the GNP growth rate, i.e. within the period of 1980 to 1984, while the GNP increased by an average annual rate of 5.56% the Steel output increased at 3.2%. As discussed above in order to improve the growth rate[3] the ISPs had undertaken the above

[1] For details of the technological innovations of the ISPs of SAIL and its phase-wise development refer (i) Corporate Plan for SAIL upto 2000 AD, May 1987, (ii) Technological Plan upto 2000 AD, Strategies and Targets, SAIL, 1987.

[2] For details refer Saxena, K.K. and Rath and Rath, B., "Employment Multiplier Effects of Modernization and Capacity Expansion of the ISPs", a study sponsored by SAIL, New Delhi, April 1989.

[3] In the Corporate Strategy it was envisaged that the ISPs would achieve a growth rate of 10.76%, 7.08% and 5.02% in Phase I, Phase II and Phase III respectively, which are projected to be higher than the GNP growth rate.

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elaborated technological innovations. Thereby it is envisaged that the saleable steel output would increase from 6.96 MT in 1984–85 to 11.26 MT in 1989–90, 15.25 MT in 1994–95 and 19.07 MT by 2000 AD. Similarly, the production of pig iron will have marginal increase in the first phase and slight decrease in the second phase, but we expect more than threefold rise in the third phase of modernization. Consequent upon a rise in the main products the by-products' production would also increase significantly. The phase-wise absolute figures of the main products and by-products are presented in Table 1. These upward trends in the output levels would significantly contribute to the output market of our economy.

Table 1
MAIN PRODUCTS, BY-PRODUCTS, AND RAW MATERIALS SCENARIO OF THE ISPS FOR THE PERIOD FROM 1984–85 TO 2000 AD

(Figures in thousand tonnes)

S.No.	Items/Years	1984–85	1989–90	1994–95	1999–2000 AD
	Main products				
1	Saleable steel	6966	11261	15251	19078
2	Pig iron	1126	1452	908	2944
	*By-products**				
3	Ammonium sulphate	73	131	130	141
4	Tar products	124	99	359	386
5	Benzol products	17	67	74	77
	Raw materials				
6	Iron ore	15775	24617	28942	36840
7	Coal	15999	26216	27470	31160
8	Limestone	3970	7913	9739	13670
9	Dolomite	1329	3011	3749	4737
10	Manganese ore	390	707	685	1111

Source: Saxena and Rath (1989), op. cit.

*The By-product figures do not include TISCO's By-products.

In addition to these direct contributions in the output markets, it is expected that technological upgradation scheme would require higher level of raw materials and inputs from the market. The higher demand by the ISPs will induce the producers of raw materials and inputs to expand their production levels. In order to achieve the higher production by improving their efficiency and productivity, although the proposed technological innovations suggest to reduce the consumption of raw material per ton of steel, their absolute consumption levels would go up significantly. For instance, while ISPs were

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consuming 1.95 tonnes of iron ore to produce a tonne of steel in 1984–85, the same consumption level would go down to 1.69 tonnes by 2000 AD. But the absolute figures would go up from 15.77 MT in 1984–85 to 36.84 MT in 2000 AD. The details of the requirements of iron ore, along with other major RMs like coal, limestone, dolomite and manganese ore are provided in Table 1. In our judgement, these additional production levels of the RMs can be attributed as the indirect contributions of the ISPs in the output market in the form of backward linkages.

The case study exercises undertaken by us in our study (1989) have established further that the ISPs will generate multiplier impacts in their input markets as a results of which the production of machinery, spare parts and refractories etc. would go up. This is also an indirect contribution of ISPs. Similarly we have envisaged that the additional flow of various products and by-products from the ISPs to the various sectors of the economy would generate a chain of multiplier effects. The recipient sectors in their run are expected to use the products of ISPs as inputs and manufacture their final products. For example, while the pig iron flows to foundries, forging and casting, SSI and ancillary and other industrial units, the semis flow to re-rollers, traders, auto and other industries and to the construction sector. The finished steel in various forms flows to various government departments, large and small scale industrial units, secondary producers of steel, and traders and individual steel users. It is expected that these customers of steel would expand their production activity to meet the growing demands and thereby add to the GNP of the country. To us these are the forward output linkages generated by the ISPs.

We have elaborated above the direct and indirect impacts of additional steel in the output market via the first round effects. But we know that owing to higher output level in steel and its backward and forward linkage sectors the level of GNP would go up. Assuming a proper distribution of the additional GNP among various groups of people and society it is further expected that the income and consumption level of people would also go up. This effect would also result from the higher wages and salary component associated with higher production level of the various linkage sectors. The higher income as well as demand will induce the wage goods sector to expand its production activity. Such second round higher production which is termed as the induced effects, would also generate more output in the economy.

(b) *Impact on the labour market*

With a view to examine the impact of additional steel production by the ISPs on the labour market, we have envisaged the employment multiplier effects in the form of:

(i) direct employment generation
(ii) indirect employment generation through backward linkages
(iii) indirect employment generation through forward linkages

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(iv) indirect employment generation through induced effects.

Since employment generation is associated with output levels in the ISPs as well as in the linkage sectors (as explained in III(a)) one can easily conceptualise that consequent upon modernization and capacity expansion of the ISPs, the employment levels in the linkage sectors would go up. However, in order to estimate such linkages we have used the Leontief's open and semi-closed input-output approaches. To accomplish such a task we have divided the Indian economy into 37 broad sectors based on the Planning Commission's latest input-putput table for the year 1984–85. In fact, we have introduced an innovative approach in such a sector classification by dividing the Iron and Steel Sector into two sub-sectors, viz., Iron & Steel—ISPs, and Iron and Steel—Rest of India. Thereby the total number of sectors become 38 in our study. Next, on the basis of a host of primary and secondary data, we have constructed a row and a column for ISPs. Furthermore, to estimate the backward as well as forward employment linkages we have used the demand side and supply side I-O model respectively. On the other hand, to capture the induced efforts we have converted the open I-O model into a semi-closed model in which the household consumption is taken as an additional column, and wages of the different sectors as an addition row, in the reformulated transaction matrix. Thereby the dimension of the new technological coefficient matrix increased to 39 × 39.

Adhering to these approaches and by using the Leontief's Inverse, i.e. $(I-A)^{-1}$, which is capable of capturing the direct and indirect effects on the outputs of the various sectors due to change in the final demand and by multiplying with the respective labour coefficients (which are estimated by us), we have calculated the total effect as:

$$\sum_{i=1}^{n} l_i A_{ij} + \sum_{j=1}^{n} A^*_{ji}\, l_i$$

where A_{ij} and A^*_{ji} are the coefficients of the column and row of ISP in $(I-A)^{-1}$ i.e. demand side I-O model and $(I-A^*)^{-1}$ i.e supply side I-O model respectively.

With the help of sectoral labour coefficients and the estimated column and row coefficients of $(I-A)^{-1}$ and $(I-A^*)^{-1}$ of the ISPs we have estimated the backward and forward linkage multipliers for all the 39 sectors of the economy. Since it is expected that the labour coefficients will change due to the change in production process and output levels in the economy, we have investigated different scenarios based on the data for 1979–80, 1984–85 and 1989–90. On the basis of a trend analysis we have calculated varying labour coefficients. And then the value of direct and indirect employment in numbers as well as the labour intensity per ton of steel has been estimated by us. Such scenarios based on the year 1984–85 and 1989–90 are presented in Table Nos. 2 and 3.

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TABLE 2

VALUE OF IRON AND STEEL (IN TERMS OF PIG IRON AND SALEABLE STEEL) OF THE ISPS FROM 1984–85 TO 1999–2000 AND THEIR CORRESPONDING ESTIMATES OF EMPLOYMENT MULTIPLIERS BASED ON THE LABOUR COEFFICIENTS FOR THE YEAR 1984–85.

S.No.	Items/Years	1984–85 Production	1989–90 Production (Projected)	1994–95 Production (Projected)	1999–2000 AD Production (Projected)
1	Saleable Pig Iron (in lakh tonnes)	11.26	14.52	9.08	29.44
2	Saleable Steel (in lakh tonnes)	69.66 (0.035)	112.61 (0.023)	152.51 (0.019)	190.78 (0.014)
3	Total Iron and Steel (in lakh tonnes)	80.92	127.13	161.59	220.22
4	Value of Iron and Steel (in lakh rupees)	416507.84	664380.44	874201.75	1137269.94
5	Value of direct and indirect backward and forward employment multipliers	8.3294	8.3294	8.3294	8.3294
6	Value of direct and indirect employment (number in lakhs)	34.6926 (0.43)	55.3389 (0.44)	72.8158 (0.45)	94.7278 (0.43)
7	Value of direct, indirect and induced, backward and forward employment multipliers	14.1244	14.1244	14.1244	14.1244
8	Value of direct and indirect exmployment multipliers with induced effects (number in lakhs)	58.8292 (0.73)	93.8398 (0.74)	123.4758 (0.76)	160.6325 (0.73)

Explanatory Note:

(i) The prices of the pig-iron and the saleable steel are calculated on the basis of data given in the Plants Accounts (SAIL).

(ii) Figures in parenthesis in rows 2, 6 and 8 indicate the number of employment per tonne of steel.

(iii) It may be noted that fluctuations in the employment per tonne of steel for the year 1990 to 2000 AD are due to variations in the percentage change in the production (more particularly in the saleable pig iron) and also due to variations in the prices of the pig-iron and saleable steel.

Source of data:

(i) The production figures are drawn from Plants Accounts of SAIL for BSP, DSP, BSL and RSP.

(ii) The production figures for IISCO are taken from its Annual Report.

(iii) The production figures for TISCO are taken from 'Iron and Steel: Annual Statistics'.

(iv) The projected figures of SAIL units are taken from the Corporatae Plan for 2000 AD, SAIL, May 1987.

(v) The projected figures of TISCO are calculated by us on the basis of the data given in 'Iron and Steel Review'

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TABLE 3

VALUE OF IRON AND STEEL (IN TERMS OF PIG IRON AND SALEABLE STEEL OF THE ISPS FROM 1984–85 TO 1999–2000 AND THEIR CORRESPONDING ESTIMATES OF EMPLOYMENT MULTIPLIERS BASED ON THE LABOUR COEFFICIENTS FOR THE YEAR 1989–90.

S.No.	Items/Years	1984–85 Production	1989–90 Production (Projected)	1994–95 Production (Projected)	1999–2000 AD Production (Projected)
1	Saleable Pig Iron (in lakh tonnes)	11.26	14.52	9.08	29.44
2	Saleable Steel (in lakh tonnes)	69.66 (0.035)	112.61 (0.023)	152.51 (0.019)	190.78 (0.014)
3	Total Iron and Steel (in lakh tonnes)	80.92	127.13	161.59	220.22
4	Value of iron and steel (in lakh rupees)	416507.84	664380.44	874201.75	1137269.94
5	Value of direct and indirect, backward and forward employment multipliers	7.2859	7.2859	7.2859	7.2859
6	Value of direct and indirect employment (number in lakhs)	30.3463 (0.37)	48.4061 (0.38)	63.6935 (0.39)	82.8604 (0.38)
7	Value of direct, indirect and induced backward and forward employment multipliers	12.8543	12.8543	12.8543	12.8543
8	Value of direct and indirect employment multipliers with induced effects (number in lakhs)	53.5392 (0.66)	85.4015 (0.67)	112.3725 (0.69)	146.1881 (0.66)

Explanatory note: Same as in Table 2.

Source Of data: Same as in Table 2.

An analysis of the results contained in Table 2 (which is based on labour coefficients of the year 1984–85) indicates that the direct and indirect multiplier effects have been more than 12 times the direct employment per ton of steel. However, with the introduction of the induced effect the same estimate goes up by more than 20 times. With programme of modernization and capacity expansion in the ISPs, the direct and indirect employment would be 19, 23 and 30 times higher than the direct employment for the years 1989–90, 1994–95 and 2000 AD respectively. In absolute terms the value of direct and indirect employment would go up from 34.69 lakhs in 1984–85 to 55.34 lakhs in

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1989–90, to 72.81 lakhs in 1994–95, and to 94.73 lakhs in 1999–2000 AD. On the other hand, with the induced effects the corresponding values would go up by 32, 40 and 52 times higher than the direct employment potentials in the ISPs. Thereby the absolute employment level would go up from 58.83 lakhs in 1984–85 to 160.63 lakhs by 2000 AD. Yet the labour intensity per ton of steel remains more or less constant for these years.

Further by introducing the lower bound coefficients, i.e. for the year 1989–90, we have projected the expected employment in various linked sectors of the ISPs in the economy consequent upon their programme of modernization and capacity expansion through technological upgradation. These estimated values for the reference years are contained in Table 3.

TABLE 4

IMPACT OF THE ESTIMATED EMPLOYMENT MULTIPLIER ON THE EMPLOYMENT FIGURES OF THE DIFFERENT SECTORS (BASED ON 1984–85 ESTIMATES)

Rank order	Name of the sector	Total (Direct, indirect and induced) backward and forward employment multiplier linkages	Total employment potential generataed through linkages (numbers)	Percentage of Col. 4 to the total employment of respective sectors
1	2	3	4	5
1	Agriculture, animal husbandry etc.	4.1441	1726050	1.7959(36)*
2	Other services	2.1920	912985	2.2355(27)
3	Rail and other transport Services	1.2982	540710	4.9245(16)
4	Construction	1.1302	470737	4.5133(17)
5	Non-metallic mineral products	0.9485	395058	22.0260(05)
6	Iron and steel (ISPs)	0.6734	280476	100.0000
7	Other manufacturing	0.5844	243407	8.1526(10)
8	Coal & lignite	0.5243	218375	36.6585(02)
9	Iron & steel (rest of india)	0.4206	175183	27.2658(03)
10	Non-electrical machinery	0.3363	140072	17.0528(07)
11	Other textiles	0.2364	98462	2.8358(23)
12	Food products	0.2340	97463	2.0027(32)
13	Cotton textiles	0.2249	93673	2.2939(28)
14	Other metallic & Non-metallic minerals	0.1998	83218	17.5829(06)

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TABLE 4 (*contd.*)

1	2	3	4	5
15	Electricity	0.1982	82552	8.0148(12)
16	Wood based industries	0.1229	51189	1.9759(33)
17	Iron ore	0.1063	44275	68.6700(01)
18	Rail equipment	0.0850	35403	24.7573(04)
19	Electrical machinery	0.0742	30905	8.2194(09)
20	Motor vehicles	0.0629	26198	11.0867(08)
21	Paper and paper based Industries	0.0568	23658	3.4709(21)
22	Communication	0.0513	21367	2.2492(29)
23	Other chemicals	0.0510	21242	3.4949(20)
24	Other transport vehicles	0.0373	15536	8.5316(11)
25	Leather and leather products	0.0266	11079	1.5258(35)
26	Sugar, khandsari and boora	0.0206	8580	2.5280(25)
27	Artsilk, synthetic fibre textiles	0.0147	6123	6.9278(14)
28	Non-ferrous metals	0.0147	6123	7.5129(13)
29	Rubber products	0.0097	4040	2.4679(26)
30	Communication and Electronic equipment	0.0092	3832	3.4647(22)
31	Cement	0.0078	3249	2.1347(29)
32	Plastics	0.0064	2666	1.9221(34)
33	Fertilizer and pesticides	0.0062	2582	2.5924(24)
34	Wollen textiles	0.0058	2416	2.0626(31)
35	Petroleum products	0.0044	1833	4.5037(18)
36	Crude petroleum and natural gas	0.0022	916	5.5401(15)
37	Coal tar products	0.0013	541	4.0373(19)
38	Synthetic fibres	0.0004	167	2.2267(30)
	TOTAL	14.1231	5882341	

*Figures in parenthesis of column 5 indicate the rank order in terms of relative sectoral employment.

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Finally with a view to examine the proportion of the ISPs induced additional employment to the total employment of the various sectors of the economy, we have made an attempt to calculate the total employment potential in absolute terms as well as in percentage terms. Such estimated values for 1984–85 are presented in Table 4. A critical analysis of the figures in cloumns 3 and 5 depicts that while in terms of total multiplier linkages (expressed in absolute terms) agriculture sector stands at the top, in terms of percentages its share goes down to the bottom because ISPs are accountable to contribute only 1.80% of the total employment in the agriculture sector. On the other hand, the iron ore sector, which occupies the 17th rank in terms ot total multiplier linkages, generates the highest relative share (i.e. 68.67% of its total employment) due to the production activities of ISPs. The iron ore sector is followed by Coal and Lignite sector that generates nearly 37% of its employment due to ISPs production activities, Iron and Steel—Rest of India, Rail Equipment, Non-Metallic Mineral Products, and the Other Metallic and Non-metallic Minerals sectors. These percentage share values are given in column 5 and their rank orders (as shown in parentheses) have established the impact of ISPs on various sectors in terms of relative sectoral employment.

IV. Concluding Observations

Our estimates of the multiplier linkage both in the output as well as the labour market have established that with the programme of modernization and capacity expansion through technological innovations, the ISPs are capable of generating a significant amount of output as well as employment in the economy through its backward as well as forward linkages. Hence, the technological innovations in the ISPs would have a significant impact on the economic development of India by fulfilling two of our important planned goals, e.g., output maximisation and employment generation. It is further observed by our estimates that the backward linkages are more pronounced than the forward linkages. These linkages improve with incorporation of the induced effects. Based on the labour coefficients for the year 1984–85 our estimates have shown that while the ISPs would generate a total employment of 58.82 lakhs, with modernization and capacity expansion the total employment would increase to 93.84 kakhs, 123.47 lakhs and 160.63 lakhs in the year 1989–90, 1994–95 and 1999–2000 AD respectively. Thus, the general contentions that the programme of modernization and capacity expansion in the ISPs through technological innovations would not generate positive impact on the labour market has been proved to be false. However, our projected estimates would be valid only when the ISPs adhere to the proposed time frame in completing their programme of modernization and capacity expansion. Let us hope that the ISPs will fulfil the planned objectives through a proper scheme of implementation and monitoring of their corporate strategies.

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VALUE THEORY AND MARX'S REPRODUCTION SCHEMES WITH CAPITALIST CONSUMPTION

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Marx intended to show that extended reproduction is possible with a uniform rate of surplus value across all industries (1961, Vol. 2, Chapter XXI). It is shown in this paper that capitalists' consumption behaviour must then vary depending on the sector in which they invest their funds so that consumption behaviour has to depend on structural parameters. Our results suggest that the labour theory of value, taken on its own assumptions, cannot be consistent with a theory of equilibrium growth except under very special circumstances. When the uniform rate of surplus assumption is given up and the assumption of a uniform rate of profit across sectors is assumed instead, the above-mentioned inconsistency disappears.

Marx's models of reproduction assume a closed, two-department economy in which the departments (sectors) are:

1. "*Means of production,* commodities having the form in which they must, or at least may, pass into productive consumption";

2. "*Articles of consumption,* commodities having a form in which they pass into the individual consumption of the capitalist and working class" (Marx, 1961, 2:395).

In each sector capital consists of two parts, *variable capital,* V_i, and *constant capital,* C_i, $i = 1, 2$. The variable capital is labour power, represented by the wage basket of commodities necessary for subsistence. Constant capital is the means of production[1]. Following Quesnay, whose Tableau shows the distribution of the total produce of the society, the units in Marx's model are expressed in money.

The output of department 1 in each period covers what is required for replacement and accumulation of constant capital in both departments; the product of department 2 has to meet whatever is necessary for the maintenance plus the required growth of labour force, and for the capitalists' consumption, F_i, $i = 1, 2$.

[1]Marx divided constant capital into "*fixed* capital, such as machines, intruments of labour, buildings, labouring animals, etc., and *circulating* constant capital, such as materials of production, raw and auxiliary materials, semi-finished products, etc." (Marx, 1961, 2:396). In the model discussed below fixed capital as well as depreciation. Since it does not change any of our results this complication is omitted from the present discussion. On this see Kondor (1966).

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The relationship between the two departments is described by the *equation of exchange*:

$$V_1(t) + \Delta V_1(t) + F_1(t) = C_2(t) + \Delta C_2(t) \tag{1}$$

which states that the value of the means of production supplied by department 1 to department 2, including that is required by department 2 for expansion, has to cover exactly whatever is required for the maintenance and growth of the labour force plus capitalists' consumption in department 1. It is assumed that the labour power necessary for accumulation will be available.

The consumption of capitalists as well as investment in constant and variable capital originate from the department's surplus, S_i, $i = 1, 2$:

$$S_i(t) = F_i(t) + \Delta C_i(t) + \Delta V_i(t) \tag{2}$$

Marx (1961, 2: Chapter XXI)[2] attempted to show through numerical examples that accumulation and reproduction can be maintained with a uniform rate of surplus value across all industries. This is essential to Marx's argument that value depends exclusively on labour since this is the fundamental assumption of the labour theory of value. In this paper Marx's assumptions are followed closely.

The rate of surplus value is constant over time and equal in both departments:

$$\frac{S_i(t)}{V_i(t)} = r \qquad i = 1, 2 \tag{3}$$

The ratio of constant and variable capital is also constant over time:

$$\frac{C_i(t)}{V_i(t)} = z_i \qquad i = 1, 2 \tag{4}$$

Marx has shown that extended reproduction is possible in the above system described by (1)–(4). Capitalists' consumption, however, was handled as a residual; no special attention was given to it. In this paper it is assumed that capitalists' consumption is proportional to surplus in each department, i.e.,

$$F_i(t) = \mu_i S_i(t) \tag{5}$$

where μ_i, a constant, is the propensity to consume out of surplus. *This assumption fits well into the Marxian model where the ratio of constant and variable capital, C/V, as well as the rate of surplus value, S/V, are assumed to be constant over time. It is also in accord with modern consumption theory, in which the long-run consumption function has a zero intercept* (Goldsmith 1955, Kuznets, 1942).

From (5) and (3),

[2]All references to Marx or "Marxian model" refer to ibid.

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$$F_i(t) = \mu_i r V_i(t) \qquad i = 1, 2, \tag{6}$$

and from (2), using (6) with (3) and (4), we get

$$r(1 - \mu_i)V_i(t) - (1 + z_i)\Delta V_i(t) = 0. \tag{7}$$

Assuming that $\mu_i < 1$ (otherwise extended reproduction is impossible), the only solution of (7) is

$$V_i(t) = V_{i0}[1 + r(1 - \mu_i)/(1 + z_i)]^t \tag{8}$$

where $V_{i0} = V_i(0)$, the initial value. Having $V_i(t)$, all the other variables may be derived from (3), (4), and (5). We get

$$V_{10}[1 + r(1 - \mu_1)/(1 + z_1) + \mu_1 r][1 + r(1 - \mu_1)/(1 + z_1)]^t$$
$$= V_{20}[1 + r(1 - \mu_2)/(1 + z_2)]^t[1 + r(1 - \mu_2)/(1 + z_2)]z_2 \tag{9}$$

which is an identity in t. Therefore,

$$r(1 - \mu_1)/(1 + z_1) = r(1 - \mu_2)/(1 + z_2), \tag{10}$$

or

$$(1 - \mu_1)/(1 - \mu_2) = (1 + z_1)/(1 + z_2) \tag{11}$$

and, from the identity of the coefficients, we get

$$V_{10}[1 + r(1 - \mu_1)/(1 + z_1) + \mu_1 r] = V_{20}[1 + r(1 - \mu_2)/(1 + z_2)]z_2. \tag{12}$$

Provided that the ratios of constant and variable capital of the two departments are known, (11) and (12) define necessary conditions the other parameters need to satisfy. These equations establish relationships between μ_1 and μ_2, and also between V_{10} and V_{20}. It can be shown that (11) and (12) together give also a sufficient condition for the existence of a single growth path for the model defined by (1), (2), (3), and (5).

The LHS of (11) is defined by behavioural parameters while the RHS is a function of structural parameters. (11) states that unless the ratios of constant and variable capital are the same, the consumption propensities must be different in equilibrium in a well specified manner, defined by structural coefficients, z_1, and z_2.

An argument can be made that μ_1 and μ_2 have to be *equal*. Consider the population of investors made up of those in departments 1 and 2. Their individual propensities to consume are somewhat different. However, the *average* propensities to consume in both departments, μ_1 and μ_2, will normally be close to each other if the numbers of the total populations of investors in both departments are large, and consumption behaviour depends only on social class. Therefore, since consumption behaviour is independent of where investors invest, Marx's model, extended with assumption (5), cannot be

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consistent with equilibrium growth: the above model can be discarded as a "stylized" description of long-run capitalistic development.

The possibility that equilibrium may not exist has been mentioned, but not elaborated, by Harris (1972, p. 512). Equation (11) was published by Harris (op. cit., eqn. 16), and also by Kondor (1966, p. 404).

As it is known, the validity of the labour theory of value is inseparable from the assumption of equal rate of surplus value across all industries (see, e.g., Blaug, 1980, p.10). The above mentioned results therefore suggest that the labour theory of value, taken on its own assumptions, cannot be consistent with a theory of equilibrium growth except under very special and unrealistic circumstances (when the C/V ratios are equal in all departments). *Since any value theory implies equilibrium, the conclusion must be that the labour theory of value is internally inconsistent.*

Assume now that our basic hypothesis, equation (3), is replaced by

$$\frac{S_i(t)}{V_i(t)} = r_i \qquad i = 1, 2 \tag{3'}$$

where r_1 and r_2 are constants over time but r_1 may be different from r_2. In this case, instead of (10) we get

$$r_1(1 - \mu_1)/(1 + z_1) = r_2(1 - \mu_2)/(1 + z_2),$$

and if p_i is introduced for the rate of profit, i.e.

$$p_i = \frac{S_i(t)}{C_i(t) + V_i(t)} = \frac{r_i}{1 + Z_i} \tag{13}$$

Instead of (10), we now have

$$p_1(1 - \mu_1) = p_2(1 - \mu_2), \tag{10'}$$

and (12) now becomes

$$V_{10}[1 + p_1(1 + \mu_1 z_1)] = V_{20}[1 + p_2(1 - \mu_2)]z_2. \tag{12'}$$

Now, if r_1 and r_2 are different such that the rates of profit are equal in the two departments, $p_1 = p_2 = p$, (11) may be written as

$$\mu_1 = \mu_2. \tag{11'}$$

Similarly, if (11′) is taken as a starting behavioural hypothesis, the identity of the rates of profit, $p_1 = p_2$, is a *necessary condition* for equilibrium growth.

In the above models all variables were given in terms of money with no reference given to the structure of equilibrium valuations or prices. These structures are called *value prices* when $r_1 = r_2$; and *production prices* when $p_1 = p_2$ (see, e.g., Brody, 1970). Criticisms of value prices as equilibrium valuations are quite numerous in the literature, the most notable, perhaps, being

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Steedman's (1977, p. 30): "In order to form a rate of profit it is clear that one must 'value' these three bundles [i.e. C, V, and S] in a consistent way. Marx 'values' them in terms of embodied labour . . . and then defines the rate of profit in *value terms* as $S/(C + V)$. To obtain the rate of profit in *money terms,* however, one must 'value' the three bundles in terms of prices and then divide profit by total capital."

The purpose of this paper has been to show by simple *growth-theoretical* considerations that whenever there is a uniform rate of surplus value across all industries, value prices are not equilibrium valuations (since equilibrium growth cannot exist). The analytical model used in this paper reveals the inconsistency present in Marx's numerical examples.

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IMPORTED CAPITALISM[1] AND MAL-DEVELOPMENT

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Introduction

The role of capitalism in economic development has been variously defined by economists of the 18th and 19th centuries when the industrial revolution emerged with the capitalist mode of production. Adam Smith, David Ricardo, J.S. Mill, Malthus and Karl Marx hailed capitalism as the dynamic force in freeing society from the shackles of feudalism. All these eminent economists have had a tremendous influence on economic thinking and policy making since. Except K. Marx, all others believed in the perpetuity of capitalism, while Marx regarded it as the indispensible historical stage leading to socialist development of society. Today's neoclassical schools or non-Marxist schools are decendants of Smith, Ricardo, Say, and Mill, and Marxists and Neo-Marxists are of Marx.

These economists advocate that the introduction of Western capitalist industrialisation will end the stagnating feudal economy of the Third World, but for reasons of their own. We will discuss them here briefly.

Adam Smith saw in the productive and accumulative character of capitalism a solution to the profound historical crisis of feudalism, which originated in the fact that the surplus created by the feudal society was squandered by unproductive workers (e.g. servants etc.) and the aristocracy, thus condemning society to a stationary state.

For Adam Smith, development means the extension of the division of labour and the application of machinery to the productive process, so that increasing population could be used more productively. Strangely though, these economists have said little about the positive effects of population growth on the development of the above two vital factors, (i.e. extension of division of labour and the use of machinery) causing the emergence of capitalism and the industrial revolution. We should also add the third factor here i.e. the growing market potential—the life blood of capitalism—that population growth has made possible. According to the Marxian schema of social surplus

[1]Imported capitalism may be defined as capitalism introduced through trade with and foreign investment from the pioneer western capitalist economies. Such capitalism in the twentieth century degenerates into a rent-seeking economics dominated by interests fed financially by windfall gains as S. Roy has interpreted. (S. Roy (1984), Pricing Planning and Politics, London, Institute of Economic Affairs).

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labour-capitalism emerges in a society when extension of the division of labour brings about revolutionary changes in the production relation (from previous family labour-based small scale artisan production with proto-technology) i.e. the relationship arising from the sale of labour as a commodity. This was made possible only through the extension of the division of labour and the latter became the dynamic force with the high rate of population growth. The high rate of population growth also made possible and profitable the use of modern science in production that characterised the intensive phase of technological change during the later part of the Industrial Revolution in the late 19th century. J.R. Hicks writes: "...one cannot repress the thought that perhaps the whole industrial revolution of the last two hundred years has been nothing else but a vast secular boom induced by the unparalleled rise in population" (J.R. Hicks, 1939; also see E. Boserup, Population and Technology).

Marx was mainly concerned with the capitalist production-relation, but never discussed the role of population growth in the development of capitalism. One author observes: "Adam Smith was the first to analyse systematically the emerging capitalist society in terms of the fundamental class division between capitalist land-owners and wage-labourers" (S. Clarke, 1982). He was also the first economist to bring about the labour theory of value.

However, Smith was not consistent with his labour theory of value as he later tried to show that profits and rents were also components of value with independence of labour as a factor of production. Smith changes the definition of labour theory of value, when he states that the value of a commodity is different from the value of the labour necessary to produce it. "They are not equal", that is, the quantity of labour bestowed on a commodity and the quantity of labour which that commodity would purchase, are not equal, according to him.

Ricardo criticised Smith's retreat from his original position but he explains the difficulty faced by Smith in maintaining labour theory of value in a capitalist society, saying that the difference that arises between the value of commodity and the value of labour necessary to produce it, is due to the capitalist system of production.

Ricardo is more for the rising capitalist class when he presents the interests of capitalists and landowners as diametrically opposed. According to him, landowners benefit from the fact that, as population grows, less fertile land is brought under cultivation resulting in diminishing returns. This pushes up rent and prices of corn, which in turn causes a necessary rise in wages in the towns and, thereby, affects adversely the profits of manufacturers. Therefore he was opposed to the repeal of corn laws which were intended to help landowners by reducing production costs.

Ricardo understood development as a process of self-sustained accumulation of capital and growth, which could be arrested only as a result of diminishing returns from a limited supply of available land. Ricardo could not

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envisage the fact that resources, particularly human resources, could be made increasingly productive through development of technology, which would offset the above tendency towards diminishing returns.

K. Marx, who propounded the labour theory of value in the truest sense of the term, realised that increased productivity of labour through technological change is the way out of the problem that sustained capitalist development would face as pointed out by Ricardo. In this sense, technological change offsets the tendency towards diminishing returns which forms the basis of the human capital concept and plays the dominant role in modern economic theories.

Although the main focus of classical political economy is the development of capitalism in Britain, and by implication in Western Europe, there are plenty of references to the situation of "less developed" non-Western economies described as "backward countries" or "improving nations". However, no elaborate theory was constructed about, or any systematic analysis of, nations regarded as backward by these schools of classical political economy. But attempts were made to explain the causes of their backwardness and also to assess the impact and consequences of European colonial expansion. Most classical economists advocated colonialism via trade on the ground of its civilising role and as the only way of stimulating the needs and material aspirations of the backward people. According to Smith, backwardness had to do with internal factors which favour agriculture over trade and internal trade over foreign trade. Modern Europe on the other hand, in his view, followed just the opposite path. He did not regard Britain as having a civilising role but as a vast commercial empire to which both Great Britain and the Colonies should contribute and which should benefit both on equal terms. Thus the foundation of the International Division of Labour as the basis of International Trade was laid down. This has played a vital role in the subsequent introduction of industrial capitalism in "backward nations". Perfect freedom of trade was for backward nations "the most effectual expedient for supplying them in due time with all the artificial manufactures and merchants whom they wanted at home" (Adam Smith, 1863).

Adam Smith and Ricardo are regarded as founders of this theory of internataional trade which still retains its profound influence as the basic foundation of international economics and trade in the capitalist world. Adam Smith's fear for future problems of development of Europe's industrial growth stemming from the limitations of the market confined to one country, and Ricardo's concern about the possibility of operation of the Law of Diminishing Returns arising from the limitedness of available land, were behind their advocacy of the International Division of Labour Theory of International Trade. Malthus, J.B. Say, and J.S. Mill are other eminent classicists who looked to trade as a means of developing thinly populated nations endowed with natural richness and fertile land which have made these backward societies lacking in effective desire to accumulate, to work harder and to save. Malthus put it thus:

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"The greatest of all difficulties in converting uncivilised and thinly peopled countries into civilised and populous ones, is to inspire them with the wants least calculated to excite their exertions in the production of wealth. One of the greatest benefits which foreign commerce confers and the reason, why it has always appeared an almost necessary ingredient in the progress of wealth, is its tendency to inspire new wants, to form new tastes, and to furnish fresh motives for industry" (Malthus, 1936).

Natural richness and fertility of the soil in these countries have made living easier and thus the tendency to leisure, new needs and new wants are to be created so that people will exert themselves more and work harder. However, J.S. Mill saw colonisation as advantageous for industrial capitalist nations, because it allowed the possibility of investing capital abroad and of getting cheap food stuffs, thus helping to counteract the tendency for the rate of profit to fall (J.S. Mill, 1874). Hobson, Lenin and later Keynes (in explaining MEC) came to the same conclusion.

Marx wrote about the origin of the industrial capital in the West laying stress on natural factors as distinct from that prevailing in the East. He came closer to other classicists in this respect. He writes: It is not true that the most fruitful soil is the most fitted for the growth of the capitalist mode of production. This mode is based on the dominion of man over nature. Where nature is too lavish, she keeps him in hand like a child in leading strings. She does not impose upon him any necessity to develop himself. It is not the tropics with their luxuriant vegetation, but the temperate zone, that is the mother country of capital. It is not the mere fertility of the soil, but the differentiation of the soil, the variety of its natural products, the changes of the seasons which form the physical basis for the social division of labour, and which, by changes in the natural surroundings, spur man on to the multiplication of his wants, his capabilities, his means and modes of labour. It is the necessity of bringing a natural force under the control of society, of economising, of appropriating or subduing it on a large scale by the work of man's hand that first plays the decisive part in the history of industry (K. Marx, Capital, vol. 1, 1st edition, 1861).

Neither Marx nor the classicists consider population growth as a vital factor in economic development. Both schools think that the rise of the capitalist mode of production brings about modern development of a feudal society. They did not consider that population growth made the rise of industrial capitalism in the U.K. possible. Although Marx's schema of the rise of social surplus labour and the extension of division of labour materialised in the U.K. simply because of the rapid growth of the population, Marx believed, like classicists, but on a fundamentally different ground, that Western capital (i.e. Railways etc.) would bring about "regeneration" of a backward nation (e.g. India). The fundamental difference with classicists is that in Marx's opinion an introduction of Western capital into these economies would make their resources more productive and, thereby, regenerate the economy unlike the way the classical economists

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thought, that is, by way of changing tastes and demand through the introduction of manufactured goods through trade. Marx writes: "I know that the English millocracy intends to endow India with railways with the exclusive view of extracting at diminishing expenses the cotton and other raw materials for their manufactures. But when you have once introduced machinery into the locomotion of a country which possesses iron and coal, you are unable to withhold it from fabrication . . .The railway system will therefore become, in India, the forerunner of modern industry." (K. Marx, 1973). Thus Marx advocated the case for technology transfer as the means to economic development of backward countries. But later, he cautioned about serious problems that are caused by technology transfer in such societies. He writes: "the railway system . . .allowed, and even forced on states where capitalism was confined to a few summits of society, to suddenly create and enlarge their capitalistic superstructure in dimensions altogether disproportionate to the bulk of the social body; carrying on the great work of production in transitional modes. . . the railways gave of course an immense impulse to the development of Foreign Commerce, but the commerce in countries which export principally raw produce increased the misery of the masses. . . All the changes were very useful indeed for the great landed proprietor, the usurer, the merchant, the railways, the bankers and so forth, but very dismal for contradiction in these societies, critical in due course for socialist transformation" (K. Marx, 1975). These later Marxists do not consider the fact that imported capitalism and technology at its intensive phase absorb a very tiny proportion of labour force, the vast majority of which remain dependent on small scale family labour based agriculture and other traditional activities in both villages and towns.

He, however, did not suggest that the introduction of Western machinery would result in the growth of structural dualism in these societies. Most Marxist economists believe that extension of introduced capitalism would generate and ultimately make contradiction in these societies critical, in due course, for socialist transformation. These later Marxists do not consider the fact that imported capitalism and technology at its intensive phase absorb a very tiny proportion of labour force, the vast majority of which remain dependent on small scale family labour based agriculture and other traditional activities in both villages and towns. Capitalist development can take place only when peasant agriculture is demolished and dynamic structural change, in terms of sectoral distribution of labour force results, from capitalist transformation. The dynamic structural change pattern in the above sense occurred in the UK, where capitalist industrialisation or development first emerged. When we compare that with any Third World country, the natural difference between indigenous capitalist development and the introduced one in the Third World, could be easily realised. We will discuss here the views of some of the present-day Marxists with regard to the role of capitalism in the economic development of

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Third World countries. We discussed elsewhere in details the theories of Baran, Frank, Immanuel and Samir Amen (see Maitra, 1980, 1986 and 1988).

Marx thought that colonial capitalism, even against its avowed intensions, could not but create the material basis of the new world and that "bourgeois industry and commerce create these material conditions of a new world in the same way as geological revolutions have created the surface of the earth" (K. Marx, 1973). We have discussed earlier the views of classicists and of Marx on the role of capitalism in backward nations. In this section we will present views of later Marxists.

Marx, Marxists and Introduced Capitalism

However, Marx later clarifies his interpretation of the relationships between industrial and backward countries within the world market, which has been the basis of later Marxist theories of development and underdevelopment, particularly, of P. Baran, A. Frank, S. Amin and A. Emmanuel. Marx writes: By ruining handicraft production in other countries machinery forcibly converts them into fields for the supply of its raw material. In this way East India was compelled to produce cotton, wool, hemp, jute, and indigo for Great Britain... Foreign lands... are thereby converted into settlements for growing the raw material of the mother country; just as Australia, for example, was converted into a colony for growing wool. A new and international division of labour, a division suited to the requirements of the chief centres of modern industry, springs up, and converts one part of the globe into a chiefly agricultural field of production, for supplying the other part which remains a chiefly industrial field (Marx, Capital, Vol. 1, pp. 424–5, Lawrence & Wishart, 1974).

Marx, as evident from the above, stressed the impact of the oppression of colonial powers as the cause of underdevelopment. He did not consider the persistence of underdevelopment in the colonial countries as effects of 'introduced' capitalism into a feudal economic structure. Engels wrote about the British rule in Ireland that "by consistent oppression they have been artificially converted into an utterly impoverished nation" (F. Engels, Letter to Marx, 23 May, 1856 in Selected Correspondence, Moscow, Progress Publishers, 1975, p. 87). And in 1867 Marx wrote, "every time Ireland was about to develop industrially, she was crushed and reconverted into a purely agricultural land" (K. Marx, in Marx and Engels, Ireland and the Irish Question, Moscow, Progress Publishers, 1978, p. 142). Marx was justified in the sense that colonial powers forced the pattern of investments in colonies to serve their own interests as opposed to the needs of their colonies. This explains the fact that the introduction of modern industries when technology was at its very early intensive phase failed to regenerate colonial economies unlike in France, Germany or Japan. However, this does not explain the stagnating sovereign states of the Third World of today (erstwhile colonies which have been injected with increased doses of modern capital, technology etc.).

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There is no doubt about the fact that colonial oppression improverished these nations, but should it be taken as the cause of underdevelopment? Marx did not address himself to the question, if the introduction of imported capitalism and technology from the West to feudal economies of the Third World when it has reached the intensive phase of industrial capitalism, could bring about the capitalist transformation and regeneration of these societies. It has not happened in most developing countries of today, despite the growth of capitalist industrialisation for nearly a century. This is clearly evident from the economic structure in terms of labour force distribution of Third World countries (see Tables at the end).

Marx did not have the opportunity to examine the effects of technology transfer at its intensive phase, which evolved since the late 19th century. However, in his days when technological change was at its early stage of intensive phase, the adverse effects of its transfer to industrially underdeveloped economies were not evident. But later Marxists must be aware of the ill effects of the transfer of technology to labour surplus economies. The intensive phase of capitalist technological change by definition uses little labour and, therefore, its introduction to underdeveloped pre-industrial economies fails to absorb the labour force in industrial sectors and thereby bring about a capitalist transformation of feudal agricultural and traditional activities, which are sources of livelihood for the vast majority of the people. During the early part of the industrial revolution in England, capitalist technological change was at its extensive phase of labour absorption, and, therefore, its progress resulted into a complete capitalist transformation of traditional agriculture and industry. This is evident from the changes in sectoral distribution of the labour force over the period as shown in Table II. When France and Germany were attempting to industrialise their economies in the mid-19th century with the help of borrowed technology from England, technology was at its extensive phase in the UK. Therefore, its transfer to French and German industrialisation processes brought about in due course a capitalist transformation of the economies of these countries. (For detailed discussion, see P. Maitra, 1980, 1986 and 1988.) It created increased demand for labour and brought about the capitalist transformation of the economic structure (Lewis and Fei-Rains models support this contention). (See Tables at the end.)

Expansion of productivity through organisational change from the artisan's household workshop, through large scale manufactory to power-operated machinofacture, accompanied by gradual change in technology from proto-technology via the extensive to intensive phase of technology may be defined as Marx's revolutionary expansion of the forces of production. It can occur only where it was possible to move labour in and out of the production process as it best suits the available technology. This form of labour mobility has been made possible through the abolition of feudalism, the need for which

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in its turn has been caused by growing pressure of population on feudal agriculture. This pressure of population resulting in the abolition of the feudal agraian system and making labour mobile turned labour into a commodity. Capitalism as a system of production oriented towards a specific form of accumulation (based on the extraction of relative surplus social labour or surplus value) necessitates a specific class structure. Indigenously evolving capitalism does create the class structure it requires as against what Frank-Wallerstein tried to convey in their theories. Frank-Wallerstein are correct only when we consider the cases of introduced i.e. imported capitalism. Thus we see, in all Third World countries, government policies are geared to the creation of capitalist sectors using borrowed capital, as capitalism has not evolved in these societies through the development of a class structure. The problem of the origins of capitalism in such societies is the development of a world market system as Frank-Wallerstein models envisage. But this type of capitalism cannot have any root in these societies and thus fails to revolutionise the mode of production and create the necessary class structure.

Baran, Frank, Wallerstein, Emmanuel and Amin try to explain the exploitation and resulting underdevelopment of the Third World by a drain of surplus which has two sources: an outflow of capital in terms of repatriation of profits, dividends etc., considerably greater than the inflow of foreign capital. They do not consider the fact that the surplus generated in these economies by foreign investment, has not been a result of increased productivity of human resources of these economies and, therefore, has neither resulted into, nor resulted from, fundamental changes in the organisation of production and the production relation of these feudal agricultural societies. On the other hand, reinvestment of profits in the form of imported investment goods would have little effect in terms of absorption of the labour force and thereby bringing about the capitalist transformation of the economy. The central issue of capitalist development for Marx is the expansion or lack of expansion of productive forces and can be easily tested with the help of dynamic changes in the sectoral distribution of the labour force. Lack of this change indicates stagnation, as has been the case with the Thire World, since they have come into contact with the Western industrialisation. The dynamic structural change of an economy indicates increased demand for labour in excess of its supply. In a free enterprise capitalist system, it results in the growth of the intensive phase of technological change. This has been the case with technological change in the Western capitalist world since the late 19th century (fo detailed discussion see Maitra, 1986) i.e. when the demand for labour exceeds its supply, economic structural change becomes inevitable. When this happens, population growth automatically declines. Experiences of developed capitalist countries support this contention. With this dynamic change in population growth and structural change, the feudal structure of peasant agriculture and traditional production

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functions and the organisation of production in both rural and urban sectors crumbles down.

There has been a net outflow of capital from the Third World taken as a whole, when compared to foreign investment from all developed countries every year from 1970 to 1980, apart from 1975. In 1970 the outflow was $3,859 million, in 1976 it was $5,869.6 million and in 1980 it was $8,178.8 million (UNCTC, 1983). The above data may be used to argue that the surplus drain explains the persistence of underdevelopment. Marx's view on trade does not suggest that underdeveloped countries do not benefit from trade or foreign investment, it only means that they gain less than the 'Centre' countries: "nations may continually exchange with one another, may even continually repeat the exchange on an ever exchanging scale, without for that reason necessarily gaining in equal degrees. One of the nations may continually appropriate for itself a part of the surplus labour for the other, giving back nothing for it in exchange" (K. Marx, 1973).

This question of 'surplus drain' is to be looked at from two different aspects i.e. from two different points of time in technological development.

Marx's argument is applicable to the period of trade during merchantile capitalism. Trade in this period makes the weaker country impoverished and the other richer, but has little implications for development or underdevelopment of both. But during the period of industrial capitalism, the country that gains the 'surplus', gets the resources for a higher rate of capital accumulation, the stimulus for further growth with increased demand for its own labour and thereby further impetus for technological change. That has been the story of the tremendous economic growth and structural and technological changes of the developed countries, with resultant fuller employment and affluence. These effects are being advanced today as factors explaining frustrations of Marx's predictions regarding socialist revolutions taking place in the developed economies first.

However, at the earlier stage of industrial capitalism, countries gaining a surplus benefited in another way, i.e. a surplus in terms of precious metals (e.g. gold and silver) helped these economies rapidly introduce monetisation of the economic activities—a condition essential for rapid growth of capitalism in these economies. Secondly, surplus gains in terms of raw materials made the cost of production cheaper and, thereby, helped an increase in the profit proportion of the national income, which in turn stimulated a rapid expansion of capitalism. The surplus drain, on the other end, meant impoverishment of those countries that suffer from it, but has very little to do with their underdevelopment for reasons discussed earlier. Underdevelopment of an economy is the underdevelopment of its human resources and it results from the economy's failure to create opportunities for productive employment. We have discussed these two phases earlier. Here we refer to them briefly to explain the problem of achieving development in the sense defined above.

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Extensive and Intensive Phases of Technological Change

However, the question of the supposed gain from foreign investment in these economies is to be examined, taking into consideration the two phases of technological changes involved in the growth of industrial capitalism in the West. In the first period i.e. when in an economy, the technological change is at its extensive phase, or at the early stage of intensive phase, the transfer of capital inputs (i.e. machinery, equipment. etc.) and technology from this economy to another, which has a highly developed proto technology, would stimulate capitalist development of the latter, because of its large employment effect. This effect would absorb surplus labour from its traditional agriculture and artisan industries, thus bringing about a gradual capitalist transformation of both sectors. This may be testified by experiences of the nineteenth century latecomer industrial economies e.g. France or Germany (see Maitra, 1980 and 1986). On the other hand, when technology has developed from extensive to its mature intensive phase, its transfer in the form of foreign investment to labour surplus economies, fails to create demand for labour and forces semi-feudal underdevelopment of these economies to persist. One important reason is that the capitalist productive force, represented by the intensive phase of introduced technology in latter countries, has not been the product of more productive use of human resources of these economies and, therefore, has no relationship with the need of the economy. Development of the extensive phase of technology in an economy prepares it for the intensive phase suitable for factor endowments, aims of production and the needs of the economy.

In other words, foreign investment in the form of intensive technology transfer to develop industries in an economy, which has not even started its extensive phase, cannot generate an indigenous force of capitalist development and thus cannot bring about the complete capitalist transformation of social consciousness and economic structure. Together with this, we should also note the difference in the nature of population growth that takes place in capitalist economies at the initial stage of their development known as 'population take off'. That is, the population growth was a product of economic growth at the initial stage of industrialisation stimulating both demand for and supply of labour and later its declining rate resulted from the rapid economic growth and capitalist transformation of their societies, while in developing economies since the early 20th century, and particularly since the mid-twentieth century, population growth that is taking place may be called 'population inflation'; in other words, population growth is not accompanied by its own productivity growth, which is a result of imported medical technology and not of growth of productivity of their own human resources. (See Maitra, 1986.) It is well known that development of human resources into human capital is a consequence of the legacy of the colonial exporting economy, which was well articulated with the renewed exporting interests of the ruling classes. It was in the interest of the ruling classes which controlled the exporting economy to open their

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frontiers to allow the penetration of British and European goods whose competition destroyed handicraft industries and hindered the 'autochthonous' modern industry. This has actually happened in all Third World countries due to the growth of export products of these countries to serve the raw material needs of developed economies and this was made possible, not because of increased productivity of the economies of the Third World, but because these export activities were generated by their own productivity. In other words, resources were financed by foreign investors, out of their own surplus generated elsewhere. Consequently, raw materials export activities did not help expanding local markets that could have stimulated industrial expansion. That's why railways, introduced in India, did not help expanding capitalist industrialisation as the Indian economy was at that level not ready for such a capitalist industry; therefore, the economy did not need it on one hand and, on the other, technology to build the railways came from the UK to meet its both political and commercial needs. (i.e. to transport raw materials to the port for exports and to expand markets for its manufactures and, politically, to bring the vast country under central political control for its own political and economic interest and not for serving India's own economic needs). Thus export industries and industrialisation whether under colonial power or after independence remained commercial or merchantile in effect. In India trade constituted, and even today constitutes, a very small part of GDP (about 8–10 per cent) and modern factory industry absorbs currently about 3–6 per cent of the labour force with over 75 per cent in primary activities. In Latin American countries agricultural exports were based on capital intensive large scale agriculture and mining, and thus threw peasants out of agriculture to urban centres. In the urban areas import substituting industrialisation has been proceeding, using borrowed technology from the West since the late nineteenth century. The urban sector, despite growth in output and diversification, could not absorb surplus labour created by population growth and migration from rural areas. The consequence has been the growth of slums absorbing more than forty per cent of the urban population. Traditional production relation using labour intensive technology flourishes in this condition and hinders capitalist development of production, technology and organisation of production.

The capitalist mode of production has been introduced in these economies, when most had flourishing merchantile capitalism, from industrialising countries of the West to meet the expanding demand for raw materials, by way of export of capital, and through the introduction of modern transport to facilitate exports or raw materials from these countries and imports of finished products. In other words, capitalism introduced in these economies has not been the result of evolution of productive forces, mainly in the form of sustained pressure of population growth on the prevailing feudal agricultural and rising merchantile activities. Capitalism has been imposed on the feudal structure of these economies. It has been characterised by its extroversion and relatively

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low degree of development of economic activities catering for the internal market and also by its very little penetration into the countryside, where it survived with feudal and semi-feudal institutions, whereas in any pre- industrial society, capitalism should emerge in the rural sector where more than 90 per cent of the total population lived. In the case of introduced capitalism from the West, it appears in the urban sector, comprised of merchants, courtiers, Government officials etc., leaving the vast rural population, the main economic producers, completely untouched. Later, the process of industrialisation remained dependent on the export of primary products and imports of machinery, recently followed by exports of manufactured products. These activities havae remained mainly confined to 10–15 per cent of the total population. In countries where capitalism indigenously evolves, the employment structure shows dynamic change as against the stagnating structure of countries where capitalism has been introduced, particularly since the technology of the introduced capitalist production reached into mature intensive phase (see Maitra, 1986). Some Marxists have complained that the capitalist development of these economies is limited, because of the non-existence or relative insufficiency of the sector which produces capital goods. These critics do not take into consideration the fact that, firstly under the present stagnating sectoral distribution of the labour force in these economies, very little incentive is provided to undertake these long run expensive investments; and secondly, even if these activities are undertaken, by the government, as has been the case with India, sufficient development of the capital goods producing sector based on imported capital and/or technology, would not produce any dynamic effects of absorbing the labour force. In India, factory production absorbs only 6 per cent of the total workers and, at the same time, India's dependence on the import of capital goods is much less than 10 per cent of the total GDP. India is yet considered as one of the largest industrialised nations of the world. This also means that the process of accumulation in these economies depends on the ability to expand exports of primary products and manufactures and is originally linked to the production of capital goods in the industrial countries. In other words, growth of capitalism in these economies has not been the result of capitalist transformation of the entire society. Such transplanted capitalism cannot have any progressive role of divesting the social mind of feudal social consciousness. This is evident in all Third World countries where religious fundamentalism is the leader of social and political life. In the economic activities, a tiny portion of the working population enjoy the status of a factor of production, while the rest remaining dependent on feudal practices of servitude.

The proportion of industrial workers to the total work force in these economies is remaining stagnant or declining with the weakening of the trade union movement and the expanding family labour based own account working activities; the unorganised sector with growing unemployment and disguised

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unemployment characterises the labour markets of these economies. These features are so evident in India that they do not need any statistics to prove them. A recent study of the Chilean economy shows that the numerical workers' weight of the Chilean workers is only a third of what it was at the beginning of the 1970s, and between 1971 and 1984 industrial workers have been reduced by 60 per cent; whereas in 1973 the unemployed were a tenth of the unionised workers, in 1983 there were three times as many unemployed as workers in trade unions. (E Tironi, Los Silencios de la Revolucion, Santiago, 1988, p. 67, cited in J. Larrain, Theories of Development, Polity Press, Cambridge, 1989). Although at the same time, industrial production has increased and has become diversified with their exports growing at a higher rate (Tables at the end of this paper). In other words, capitalist growth is not diffused within the economy embracing the whole society. Reasons have been discussed above.

The State of the Economy of the Third World when Capitalism was Introduced

Capitalism has emerged in a society where extraction of surplus labour for further investment to produce further and a higher level of surplus for expropriation by the capitalist class is possible. This condition in a pre-industrial or feudal society arises when a sustained population growth results in surplus labour, which could not be used productively with existing proto-technology and in a small scale household organisation. But the existence of this surplus labour is taken advantage of by surplus owners of a feudal society (i.e. merchantile class) to develop proto-technology suitable for 'large scale' manufactory based on extensive division of labour. The surplus labour makes possible the appropriation of surplus labour value, which is reinvested to generate further surplus until the surplus labour supply is exhausted (as it began to happen in the UK during the late 19th century), causing the possibility of raising wages, in the eventuality of which surplus value accumulation of the capitalist class would be thwarted. At this point modern science began to be used in production, making labour more productive and thereby the accumulation of profit or surplus value at an increasingly higher rate a reality. The sustained growth of the population makes possible the introduction of the division of labour, expansion of markets for products and the use of a capitalist mode of large scale production replacing proto-technology based household industries, of a feudal mercantile economy. In this process, growing accumulation of surplus value results in an increasing demand for labour via increasing competition among capitalist producers, to acquire a greatear share of markets (growing population and productivity effects). But this development in a capitalist society tends to push up the price of labour and thereby thwarts the profitability of investment. In the Third World, when merchantile capitalism and proto-technology was emerging as a growing force, the population growth rate was very low to make possible the emergence and development of an

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indigenous capitalist class due to the absence of two sustained population growth effects. Without a sustained and sufficient population growth as a stimulus and as a source of cheaper labour supply, surplus owners of the feudal society cannot be induced to undertake longer term investment and use of science in production.

Capitalism was introduced into these feudal economies when their population growth was around 0.1–0.2 per cent. However, when it was introduced from the West, technology was at its intensive phase and, therefore, created little demand for labour. (Employment multiplier effect of such industrial growth is very limited—Higgins, 1964.) As the demand for labour effect was minimal, the introduction of machinery and technology failed to bring about any organisational change in production. Population growth-under the circumstances, resulted in the persistence of overcrowded small scale agriculture and the production-relation in agriculture remained feudal. British rule introduced land reforms which pushed the economy backward as the introduced industrial capitalism failed to absorb surplus labour. After the abolition of communal ownership, under the circumstances, landowners, instead of mechanising agriculture, used cheap labour at a subsistence wage. Marx mentioned the effects of land reforms introduced by the British Government in India to suit imported industrialisation. The abolition of the communal ownership of land in India "was only an act of English vandalism which pushed the indigenous people not forward but backward".

In Britain, sustained population growth spurred agrarian reforms and innovation resulting in large scale agriculture and the industrial revolution—the source of indigenous technological change (Hicks, 1964 and Boserup, 1981).

In India, abolition of communal ownership of land and the introduction of private ownership instead, failed to create any force of dynamic industrial and agricultural development and the development of human resource into human capital in due course. The two basic conditions necessary for such development were absent at the time. First, the population growth rate was not strong enough (around 0.2 per cent) to create any pressure on existing technology and resources causing technological change; while in the later period i.e. since the late 19th century onwards, the higher population growth (0.6 per cent and above, rising to over 3 per cent in 1950's) that began to take place did not result from indigenous economic development that creates increased demand for labour and stimulates birth rate, but from imported medical technology that depresses death rate. Therefore, in the later period, high population growth did not stimulate the rich traditional proto-technology of India to flourish into industrial technology, but dwarfed its growth through diminishing returns of increased population pressure on small plots of land. On the other hand, introduced industrial technology did not create sufficient demand for labour, which, as a consequence, failed to result in a decline in population growth.

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Secondly, industrial capitalism in India failed to create diffusion effects throughout the economy and remained confined to industrial islands isolated from the major part of the society. Transplanted capitalism cannot bring about capitalist transformation of a society when it is based on the intensive phase of technology developed to meet the need of a different society. India's second land reforms after independence have failed to bring about the dynamic change in agriculture for the reasons stated above.

Imported capitalism and modern inputs have been introduced by way of pursuing the green revolution technology in rural India, but this approach has failed to create increased labour productivity and therefore needed more labour in agriculture. This effect contradicts the process of capitalist transformation of agriculture when it supplies human resources for development of the industry. Industrial growth, on the other hand, not being a product of agricultural capitalist development, fails to absorb surplus labour from rural areas. Imported capitalism, thus in effect, maintains basically the character of commercial capitalism, the main role of which is to earn profit without increasing the productivity of domestic resources. In this economic structure, capitalism cannot be accommodated. According to Brenner, capitalism can exist only when class structure exists. But, unfortunately, he did not discuss how this class structure emerges in a society. I have briefly discussed above Frank-Wallerstein's views of capitalism. It is true that capitalism is a system in which earning of profit via exchange dominates. But commercial or mercantile capitalism is also a system of earning profit via exchange. However, under commercial capitalism profit does not result from increased productivity of resources which occurs only when capitalism emerges in a society. Under 'imported' capitalism in a predominantly pre-industrial class structure, profit is generated ion an exchange system, but not as a result of the use of the labour force in an increasingly productive way. Thus this process contributes little to the capitalist transformation of the economy and has a similar effect in this respect as that of mercantile capitalism. Social consciousness remains dominated by feudal attitude towards religion, politics and social practices.

Rey's theory of mode of production specified three distinct and successive stages of articulation of modes of production, when the capitalist mode of production is introduced from outside. First, the 'imported' capitalist mode of production into the non-capitalist societies proceeds to reinforce and, in some cases, to create non-capitalist modes of production. Second, capitalism takes 'root' and 'uses' from its dominant position, the non-capitalist modes of production. Finally, at some point, the capitalist mode of production supplants all non-capitalist modes of production and non-capitalism disappears. However, according to Ray, developing countries have not yet reached this stage. This three-stage articulation model of imported capitalism is applicable to nineteenth century cases of the development of capitalism outside Britain, except that in the USA, Canada, Australia and New Zealand, where imported

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capitalism initiated modern development, while traditional non-capitalist mode of production is still dominant among the indigenous population (e.g. American Indians in the USA, Eskimos and American Indians in Canada and Aborigines in Australia. However, Maoris in New Zealand are more integrated with the capitalist mode of production than others.) In the case of Japan, the third stage i.e. the disappearance of the non-capitalist mode of production took a much longer time (nearly eighty years) than the nineteenth century cases of imported capitalism in Europe took.

Rey's optimism about the disappearance of 'non-capitalism' in the Third World in future results from his failure to take into account two important factors in the development of capitalism in the West, which is the exporter of capitalism to the Third World. First, the two phases of development of capitalist technology have no place in his theory.

I have argued that the capitalist class in India is a result of transplantation of the capitalist mode of production from overseas where this mode of production has evolved historically. As such, the capitalist class in India has no root in its history. India had wealthy feudal and mercantile classes but surplus social labour extracted by these classes did not play any role in India's capitalist industrial development even though India was rich in proto-technology, products of which were known world-wide at that time. Causes of the failure of industrialisation to evolve in India from traditional proto-technology have been discussed. Briefly, population pressure on the existing resources and technology was not strong enough to generate forces to develop proto-technology into industrial technology as it did in Britain. The population growth was meagre at around 0.2 per cent or even less and sometimes negative and not sustained. In the view of Kautsky, feudalism, like other modes of production, only has the ability to sustain no more than a certain size of population and once the limit is reached feudalism gives way to another mode of production (capitalism) which can carry on with the task of sustaining a population too big for feudalism (Quoted in A. Hussain and K. Tribe, Marx and Agrarian Question, 1987, and see for details P. Maitra).

Capitalism in India, not having been a product of India's own social and economic development generating the social surpuls needed for capitalist transformation, has failed to play any progressive role of the type that capitalism played in the UK in the nineteenth century. An introduced capitalism results in acute exploitation, poverty and economic inequality, but cannot bring about revolutionary change in the mode of production and with it in social consciousness. That is why, despite a long history of introduced capitalist industrialisation in India, over 70 per cent of labour force is dependent on primary sector and only 9 per cent is in manufacturing including 3–4 per cent in small scale and household industries. When capitalism emerges as a historical necessity, a society cannot afford this kind of undeveloped economic structure. On the other hand, when the mode of capitalist production evolves in a society,

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it brings about a revolutionary change in the social mind, hitherto a feudalistic one of worshipping nature and the feudal lord, blind religious faith, and fatalistic outlook on life. In India, the recent rapid growth of industrialisation and modernisation, on the contrary, has been accompanied by a rising tempo of feudal practices, religious fanaticism, religious fundamentalism and communal riots.

With the above interpretation of class and its role, very little can be said of the significance of surplus extraction resulting in the development of capitalism. There is no doubt about the fact that a huge surplus is extracted and becomes increasingly concentrated in the hands of a few due to the nature of technological change introduced in these societies. In 19th century cases of capitalist industralisation, extraction of surplus played a vital role in the spread of capitalism absorbing human resources in a more productive way. This surplus was generated as a result of increased productivity of social labour.

In later cases of capitalist industrialisation, with imported technology from developed economies at their intensive phase of technological change, the rate of extraction of surplus has been enormous and much higher than what it was during the 19th century capitalist industrialisation, but with little diffusion effects and with no impact in terms of raising social consciousness as Marx envisaged. On the contrary, rapid growth of modernisation with imported technology has been accompanied by strengthening of the feudal social mind, deepening communalism and religious fundamentalism. This is to be expected; because when technology and production instruments evolve from the traditional stage through interactions between the social mind and environment, human resources are processed and divested of past feudalistic blind religious faith and fatalism. As the technology based on science evolves through more productive use of labour, the capitalist system extracts social surplus for its own use and, unconsciously, prepares its own grave. In Marx's view, factory life required cooperation among workers against the onslaught of capitalist exploitation. This helps the development of a communist consciousness which is a necessary and irreplaceable step prior to the revolutionary establishment of a communist society.

Is this applicable to the capitalism of India where factory workers comprise only 6 per cent of the labour force? When capitalist technology, evolved in another country through the use of its social labour, is transferred to India or any other third world country of today, it absorbs very little of their labour in capitalist production but undoubtedly it generates a tremendous amount of economic surplus while the vast majority of the workforce remains engaged in primary activities, small scale and household industries, as petty traders, proters, domestic servants, etc. The capitalist service sector again absorbs very little of human capital. The capitalist sector, though very limited, extracts a huge surplus but with very little labour.

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In the circumstances, the extraction of surplus has no more significance than surplus extraction by the mercantile capitalist class. That is, introduced capitalism draws a huge surplus but fails to revolutionise the mode of production and develop socialist social consciousness as most Marxists believe. Before we conclude we would like to mention some important indicators to measure the extent of capitalist frame-formation of an economy.

APPENDIX

Indicators of Capitalist Transformation of an Economy

The capitalist transformation of a society is indicated by the following changes:

(1) Dynamic changes in the sectoral distribution of the labour force with labour gradually moving out of the primary sector to the secondary or the industrial sector, and then to the tertiary sector. These changes are functionally related to technological changes from the extensive to the intensive phases. However, in some Third World countries, the labour force dependence on agriculture has declined at the cost of the urban sector, service and family enterprise activities.

(2) The disguised unemployment of surplus labour, characteristic of a pre-capitalist economy, is replaced by a cyclical open unemployment. The factor price e.g. wage payment system based on the average product of labour (i.e., sharing of the output of labour in small scale and family enterprises) is replaced by the marginal product (Lewis, and Fei and Ranis models).

(3) The capitalist transformation of an economy should have significant demographic effects. That is, with the capitalist transformation, population growth tends to rise at the initial stage, when technological change is at its extensive phase and begins to decline with the rise and expansion of the intensive phase of technological change. Both these trends are effected by changes in birth rates; unlike the Third World, population growth in half-baked capitalist economies today is caused by rapidly falling mortality rates.

The above changes in economic structure, demography and the factor pricing system must take place simultaneously entirely due to their nature of interrelatedness in a society undergoing capitalist transformation.

Unfortunately, Third World countries have hardly shown any sign of these changes, despite the rapid growth of modern capitalist enterprises (Tables showing demographic and structural changes of different periods) (see Maitra, P., Education, Technological Change and Structural Change, in *Indian Journal of Social Science*, July 1991, forthcoming).

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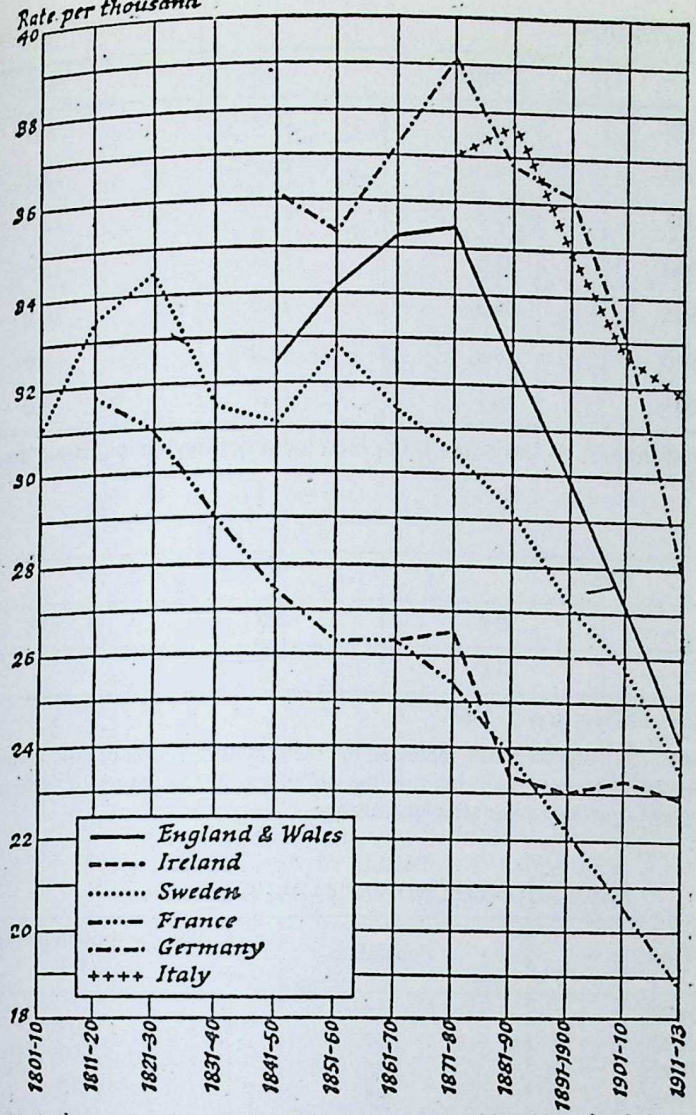
TABLE 1



Birth-rate in several European countries in the nineteenth century

Source: Andre Armengaud, Population in Europe 1700–1914 in C. M. Cipilla (ed.), The Industrial Revolution, Fontana.

TABLE 2

CRUDE BIRTH RATE AND CRUDE DEATH RATE (INDIA AND UK)

I. *INDIA*

1965			1987 (per 1000)		
CBR	CDR	PGR	CBR	CDR	PGR
45	21	24	32	11	21

Source: World Bank Dev. Report, 1989.

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II. *BRITAIN* (1776–1975)

	CBR	CDR	PGR
1776–1800	35.5	26.4	9.1
1826–1850	36.0	22.5	13.5
1851–1875	35.8	22.2	13.6
1876–1900	32.8	19.2	13.0
1901–1925	24.2	14.2	10.0
1926–1950	16.6	12.2	3.9
1951–1975	16.7	11.7	5.0

Source: P. Mathias and J. A. Davis (eds.), The First Industrial Revolution, Basil Blackwell, Oxford, p. 142.

III. *UK*

1965		1987	
BR	DR	BR	DR
18	12	13	12

Source: World Bank Dev. Report, 1989.

The above three Tables together with Tables on the sectoral distribution of labour force (i.e. economic structural Change) would indicate the difference in the nature of technological change, demographic and economic structural change.

TABLE 3
POPULATION OF UNDIVIDED INDIA (in million)

Year	Population	Average growth per annum (%)
1872	255	
1881	257	0.07
1891	282	0.97
1901	285	0.16
1911	303	0.63
1921	306	0.09
1931	338	1.4
1941	389	1.5
1951	437	1.2
1961	534	2.2

Source: D.P. Bhattacharya, Population of India, 1951–1961, Indian Statistical Institute, 1967 (memeo), Calcutta.

The accelerated growth of population since 1931 was due to eradication of malaria, weakening impacts of epidemics achieved as effects of imported modern medical technology. Birth rate remained stationary while death declined. The trend is continuing today, only with a slight fall in birth rate caused by limited urbanisation and education effects. Only about 20% of the total population live in urban areas and 40% are literate.

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TABLE 4
BROAD OCCUPATIONAL DISTRIBUTION OF LABOUR FORCE: UK

Year	Primary		Secondary		Service Sector					
	Agriculture, fishing & forestry	Mining	Cons-truction	Manufacture, elec. and gas	Transport and communi-cations	Com-merce & finance	Profession & entertainment	Govt. services	Private domestic services	Short services
1841	23.1	3.1	5.8	36.6	3.0	5.7	2.9	1.1	— 19.1	—
1881	12.3	4.1	6.7	39.5	5.9	9.2	3.8	1.9	— 16.6	—
1901	8.7	5.9	8.0	32.9	9.8	11.0	4.4	2.5	14.3	2.0
1911	7.8	6.9	5.2	34.6	8.0	—	18.7 —	4.2	9.0	5.6
1921	6.7	7.3	4.1	38.7	8.1	13.2	3.7	6.4	7.0	4.5
1951	4.5	3.9	6.3	39.5	7.8	14.4	7.0	8.0	2.3	6.8

Source: Colin Clark, *The Conditions of Economic Progress*, p. 515

Note: This table indicates the pattern of broad occupational distribution of labour force in a developed economy. This may be compared with Table 2 giving the same information for India for the period 1901–1961.

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Table 5

PERCENTAGE DISTRIBUTION OF WORKERS BY INDUSTRIAL CATEGORIES, 1901–1961 (INDIA)

Year	Total population	Total workers	Non-workers	Primary Sector			Secondary Sector			Tertiary or Service Sector		
				As cultivator	As agricultural labour	in mining, quarrying, live-stock, forestry, fishing, housing and plantations etc.	As household industry	Manufacturing other than household industry	In construction	In trade and commerce	In trasnport, storage and communications	In other services
1901	(100)	100 (46.61)	(53.39)	50.64 (23.61)	16.89 (7.87)	4.33 (2.01)	— —	11.73 (5.47)	0.78 (0.36)	6.05 (2.82)	1.12 (0.53)	8.46 (3.94)
1911	(100)	100 (48.07)	(51.93)	49.49 (23.94)	20.57 (9.88)	4.74 (2.80)	— —	9.93 (4.77)	0.96 (0.46)	5.51 (2.65)	1.12 (0.54)	7.38 (3.55)
1921	(100)	100 (46.92)	(53.08)	54.39 (25.52)	17.40 (8.16)	4.48 (2.10)	— —	9.29 (4.36)	0.84 (0.40)	5.73 (2.69)	0.94 (0.44)	6.93 (3.25)
1931	(100)	100 (43.30)	(56.70)	45.04 (19.51)	24.79 (10.73)	5.18 (2.24)	— —	8.91 (3.86)	1.04 (0.45)	5.59 (2.42)	1.08 (0.44)	8.42 (3.65)
1951	(100)	100 (39.10)	(60.90)	50.02 (19.56)	19.72 (7.71)	2.95 (1.15)	— —	9.00 (3.52)	1.05 (0.41)	5.24 (2.05)	1.53 (0.64)	10.49 (4.10)
1961	(100)	100 (42.98)	(57.02)	52.82 (22.70)	16.71 (7.18)	2.75 (1.18)	6.39 (2.74)	4.22 (1.82)	1.09 (0.47)	4.05 (1.74)	1.59 (0.69)	10.38 (4.46)

Source: A note on the working force estimate, 1901–1961, B.R. Kabra., *Final Population Tables*, Paper No. 1, 1962

Note: Figures in brackets indicate percentage distribution of population into workers and non-workers classified by broad occupation.

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TABLE 6
ECONOMIC STRUCTURAL CHANGE IN INDIA

LABOUR FORCE DISTRIBUTION

	Agriculture	Industry	Service
1965	74	11	15
1983	71	13	16

SECTORAL DOMESTIC PRODUCT

	(A)	(I)	(M)	(S)
1965	47	22	15	31
1983	36	26	15	38

Source: World Development Report, 1985.

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ECONOMIC DEVELOPMENT, MONETISATION AND FORMS OF HOUSEHOLD SAVINGS

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The economic development of an underdeveloped country, based on exchange transactions, gives rise to the increasing monetisation of its economy and this is found true of the Indian economy also during the period from 1970–'71 to 1984–85. Monetisation results in an increasing financialisation of household savings in the country. When the share of financial assets in total household savings in India during the period from 1970–'71 to 1984–85 is linearly regressed on the index of monetisation of the economy, statistically highly significant result is obtained thereby supporting the above hypothesis. Financialisation of household savings facilitates productive investment of savings and induces further development of the economy. Economic development and monetisation, thus, reinforce each other giving rise to a cumulative process of economic development of the country.

The economic development of an underdeveloped country gives rise to various changes, in its wake, in the economic structure of the country and in the economic behaviour of its people and institutions. Two such related changes are the increasing monetisation of the country's economy and the increasing role of money and other financial assets as a form of household savings in the country.

The economy of an underdeveloped country is characterised by the predominance of barter. As the economic development of the country takes place, based on exchange transactions, the country's economy becomes increasingly monetised and monetary transactions and monetary savings increasingly replace barter transactions and savings in the form of goods including precious metals. Increasing monetisation induces further development of the economy through increasing financialisation of household savings and also by facilitating large exchange transactions.

The objective of this paper is to analyse the trends in these related changes in India during the period from 1970–71 to 1984–85. More specifically, it aims at verifying the two related hypotheses, namely, (i) economic development gives rise to increasing monetisation of an economy; and (ii) monetisation of the economy leads to increasing financialisation of household savings in the economy. This it does by analysing the data pertaining to the Indian economy during the period from 1970–71 to 1984–85. This period is chosen because of

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the ready availability of comparable official data pertaining to the variables involved in the analysis.

Trend of Development of the Indian Economy

Taking increase in real gross national product and per-capita real national product as indicators of economic development[1], the rate of economic development of India during the period from 1970–71 to 1984–85, the period chosen for analysis in this paper can be perceived from the data contained in Table 1. These data reveal that while the index numbers of real gross national product and real net national product at factor cost at 1970–71 prices increased from 100.0 in 1970–71 to 167.9 and 166.5 respectively in 1984–85, the index number of per-capita real net national product at factor cost at 1970–71 prices increased from 100.0 in 1970–71 to only 121.9 in 1984–85. These figures indicate that the Indian economy had registered roughly 68 per cent growth, over that in 1970–71, during the period from 1970–71 to 1984–85 in terms of real gross national product and of roughly 22 per cent growth during the period in terms of per capita real net national product.

Economic Development and Monetisation

As the economic development of a country takes place based on exchange transactions, the economy increasingly becomes an exchange economy and barter exchange gives place to monetary exchange transactions. This increases the economy's need for money and the monetary authority expands money supply in order to meet this increasing requirement of money of the economy. The increasing supply of money encourages further monetary transactions so that as the economic development of a country takes place, its economy becomes increasingly monetised. The economic development of a country, thus, leads to the monetisation of its economy.

An index of Monetisation

The extent of monetisation of an economy can be studied using the ratio of total money supply to the gross real national product of the economy at any time. An index of monetisation of the economy is obtained by taking the ratio of the index number of money supply in the country at any time to the

[1]Increase in real gross national product and per capita real national product as an indicator of economic development has its limitation in that it does not reflect adequately the improvement in distribution—involving compositional, personal and temporal aspects of distribution—that the economic development of a country should give rise to. It does not also reflect fully the improvement in the physical quality of life of the people as is indicated by the Physical Quality of Life Index developed by the Overseas Development Council in the United States in 1977. However, since an increase in real per capita income of a country is essential for an improvement in the standard of living of the people, the rate of increase in real national product and in real per capita national product is taken as the broad indicator of the rate of economic development of the country.

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TABLE 1

GROWTH OF NATIONAL PRODUCT AND PER-CAPITA NATIONAL PRODUCT IN INDIA (1970–1985)

Year	GNP at factor cost		NNP at factor cost		Per capita NNP at factor cost	
	Amount (Rs. crores)	Index (1970–71 =100)	Amount (Rs. crores)	Index (1970–71 =100)	Amount (Rs.)	Index (1970–71 =100)
1970–71	36,452	100.0	34,235	100.0	632.8	100.0
1971–72	36,999	101.5	34,713	101.4	626.6	99.0
1972–73	36,629	100.5	34,215	99.9	603.4	95.4
1973–74	38,486	105.6	36,033	105.3	621.3	98.2
1974–75	38,958	106.9	36,590	106.9	617.0	97.5
1975–76	42,694	117.1	40,170	117.3	661.8	104.6
1976–77	43,076	118.2	40,429	118.1	652.1	103.1
1977–78	46,823	128.5	44,043	128.7	694.7	109.8
1978–79	49,573	136.0	46,546	136.0	717.2	113.3
1979–80	47,180	129.4	44,085	128.8	663.9	104.9
1980–81	50,824	139.4	47,507	138.8	699.7	110.6
1981–82	53,166	145.9	49,631	145.0	715.1	113.0
1982–83	54,084	148.4	50,437	147.3	711.3	112.4
1983–84	58,112	159.4	54,276	158.5	748.6	118.3
1984–85	61,201	167.9	57,014	166.5	771.5	121.9

Source: Government of India: Economic Survey (different issues).

corresponding index number of its gross real national product. Thus, the formula for the index of monetisation of an economy is:

$$I_{mi} = \frac{I_{msi}}{I_{gnpi}}$$

where I_{mi} = Index number of monetisation of the economy for the year 'i'.

I_{msi} = Index number of money supply in the economy for the year 'i' with a given base.

I_{gnpi} = Index number of gross real national product of the economy for the year 'i' with the same base as that of the index number of money supply.

The same base year is used for the index number of money supply and for the index number of gross real national product so that the index number of monetisation corresponding to the base year (I_{mo}) becomes 'one'. Since the index number of monetisation corresponding to the base year is 'one', positive deviations of I_{mi} from 'one' indicate increasing monetisation of the economy and negative deviations from 'one' indicate a decrease in monetisation. An

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increase in I_{mi} over the previous year indicates increasing monetisation and a decrease indicates decreasing monetisation when compared with that of the previous year.

Data pertaining to the growth of gross real national product and increase in the supply of money, as measured by M_3, in India and the index of monetisation of the Indian economy during the period from 1970–71 to 1984–85 are presented in Table II. These data reveal that while the index number of gross real national product of India increased from 100.0 in 1970–71 to 167.9 in 1984–85, the index number of money supply, as measured by M_3, in the country increased from 100.0 to 930.4 during the same period. The increase in the supply of money at a rate much higher than the growth of gross real national product in the country has given rise to increasing monetisation of the Indian economy. This is indicated by the fact that the index of monetisation of the Indian economy had increased steadily from 1.00 in 1970–71 to 5.54 in

TABLE 2

GROWTH OF NATIONAL PRODUCT, SUPPLY OF MONEY AND MONETISATION OF THE INDIAN ECONOMY (1970–71 TO 1984–85)

Year	GNP at factor cost at 1970–71 prices		Supply of money (M_3)		Index of monetisation
	Amount (Rs. crores)	Index	Amount (Rs. crores)	Index	
1970–71	36,452	100.0	10,958	100.0	1.00
1971–72	36,999	101.5	12,690	115.8	1.14
1972–73	36,629	100.5	15,033	137.2	1.37
1973–74	38,486	105.6	17,571	160.4	1.52
1974–75	38,958	106.9	19,462	177.6	1.66
1975–76	42,694	117.1	22,157	202.2	1.73
1976–77	43,076	118.2	27,285	249.0	2.11
1977–78	46,823	128.5	32,905	300.3	2.34
1978–79	49,573	136.0	39,867	363.8	2.68
1979–80	47,180	129.4	46,792	427.0	3.30
1980–81	50,824	139.4	55,451	506.0	3.63
1981–82	53,166	145.9	62,488	570.3	3.91
1982–83	54,084	148.4	72,040	657.4	4.43
1983–84	58,112	159.4	85,899	783.9	4.92
1984–85	61,201	167.9	101,957	930.4	5.54

Source: 1. Government of India: Economic Survey (different issues).

2. Reserve Bank of India Bulletin (different issues)

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1984–85. These facts prove the hypothesis that the economic development of a country leads to the increasing monetisation of the country's economy.

Trend and Sectoral Composition of Saving in India

A high rate of domestic saving is necessary in a developing country like India for two basic reasons:

First, a high rate of domestic saving provides the economy with the resources required for capital formation. The advantage of domestic savings as a source of capital formation, when compared with other forms of resource mobilisation, is that it is non-inflationary in character and is the ultimate form of the sources of capital formation in a country. This is why economists have used the rate of domestic saving as a criterion of identifying the stage of economic development of a country. While discussing the role of capital in the economic growth of a country, Lewis points out, for instance, that "...communities in which the national income per head is not increasing invest 4 or 5 per cent of their national incomes per annum or less, whilst progressive economies invest 12 per cent per annum or more. The central problem in the theory of economic growth is to understand the process by which a community is converted from being a 5 per cent to a 12 per cent saver—with all the changes in attitudes, in institutions and in techniques which accompany this conversion"[2] Similarly, Rostow uses the rate of productive investment as one of the criteria of defining the "take-off" stage in the economic growth of a country and "the preconditions for take-off include an initial ability to mobilise domestic savings productively, as well as a structure which subsequently permits a high marginal rate of savings."[3]

Secondly and negatively, a high rate of domestic saving in a developing economy avoids the emergence of inflationary pressures and the associated problems by restricting consumption expenditure in the economy during the initial stages of its development when the different types of consumer goods are bound to be in short supply within the economy.

Data pertaining to the trend of saving in India during the period from 1950–51 to 1984–85 are presented in Table 3. These data reveal that the rate of gross domestic saving in India had been increasing steadily from 10.2 per cent of gross domestic product at market prices in 1950–51 to 22.9 per cent in 1984–85. In fact, the rate of gross domestic saving in India was as high as 24.7 per cent of gross domestic product at market prices in 1978–79 and declined thereafter to 22.2 per cent in 1983–84 and then increased marginally to 22.9 per cent in 1984–85. This supports the hypothesis that the rate of domestic saving tends to rise, at least in the initial stages, as the economic development of a

[2]Lewis, W.A.: The Theory of Economic Growth, George Allen and Unwin Ltd., London (1972), pp. 225-26.

[3]Rostow, W.W.: The Stages of Economic Growth, Cambridge University Press, Cambridge (1974), p. 39.

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TABLE 3
RATE OF DOMESTIC SAVING IN INDIA AT CURRENT PRICES
(AMOUNT IN RS. CRORES)

Year	Domestic product at market prices		Domestic Savings		Rate of Saving	
	Gross	Net	Gross	Net	Gross	Net
1950–51	9,564	9,240	975	651	10.2	7.0
1959–60	13,979	13,318	1,765	1,104	12.6	8.3
1970–71	40,263	38,046	6,783	4,566	16.8	12.0
1971–72	43,557	41,091	7,484	5,018	17.2	12.2
1972–73	48,060	45,292	8,116	5,348	16.9	11.8
1973–74	58,940	55,917	11,392	8,369	19.3	15.0
1974–75	69,595	66,069	12,653	9,127	18.2	13.8
1975–76	74,084	70,038	14,846	10,800	20.0	15.4
1976–77	80,341	75,849	17,699	13,207	22.0	17.4
1977–78	90,096	85,085	19,235	14,224	21.3	16.7
1978–79	97,748	92,011	24,138	18,401	24.7	20.0
1979–80	107,542	100,844	26,698	18,000	23.0	17.8
1980–81	127,453	119,350	29,375	21,272	23.0	17.8
1981–82	147,684	137,887	33,458	23,661	22.7	17.2
1982–83	165,136	153,663	37,368	25,895	22.6	16.9
1983–84	194,061	180,613	43,083	29,635	22.2	16.4
1984–85	214,385	198,986	59,090	33,691	22.9	16.9

Source: Central Statistical Organisation, Ministry of Planning, Government of India: National Accounts Statistics (different issues).

country takes place.[4] This increasing domestic saving has the benefit of encouraging further economic development of the country by increasing the rate of capital formation so that the economic growth of the country tends to become self-sustaining.

[4]The psychological law of consumption propounded by Keynes points out that as the income of a person increases, his expenditure on consumption tends to rise, but at a rate less than proportionate to the rate of increase in his income. Keynes observes: "The fundamental psychological law, upon which we are entitled to depend with great confidence both a priori from our knowledge of human nature and from the detailed facts of experience, is that men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not by as much as the increase in their income." (Keynes, J.M.: The General Theory of Employment Interest and Money, Macmillan & Co., Ltd., London (1961), p. 96.) When this law is extended to the economy as a whole, the hypothesis, which may be called the development-saving relationship hypothesis, that emerges, is that as the economic development of a country takes place, the rate of domestic saving in the country tends to rise. As pointed out by Keynes himself, "the psychology of the community is such that when aggregate real income is increased aggregate consumption is increased, but not by so much as income." (Ibid., p. 27.) Consequently, as the real income of a country increases in the process of its economic development, the rate of domestic saving in the country tends to rise.

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Role of Household Savings

It is enlightening to analyse the sectoral composition of domestic saving in India and the role of household savings in gross domestic saving in the country. The methodology adopted for this purpose is to follow the three-sector classification of the economy made by the Central Statistical Organisation, Ministry of Planning, Government of India, in its National Accounts Statistics. The household sector, the private corporate sector and the public sector are the three broad sectors of the economy and the contributions of these three sectors to gross domestic savings in India and their relative shares in gross domestic savings in the country during the period from 1970–71 to 1984–85 are presented in Table 4. These data reveal that the share of the household sector in the gross

TABLE 4
SECTORAL COMPOSTION OF GROSS DOMESTIC SAVING IN INDIA AT CURRENT PRICES (RS. IN LAKHS)

Sector	Household Sector	Private Corporate Sector	Public Sector	Total
1970–71	487243 (71.8)	65632 (9.7)	125387 (18.5)	678262 (100.0)
1975–76	1045227 (70.4)	105560 (7.1)	333890 (22.5)	1484677 (100.0)
1980–81	2211915 (75.3)	265318 (9.0)	460287 (15.7)	2937520 (100.0)
1981–82	2348914 (70.2)	274002 (8.2)	722857 (21.6)	3345773 (100.0)
1982–83	2647166 (70.8)	305583 (8.2)	784158 (21.0)	3736907 (100.0)
1983–84	3308664 (76.8)	333294 (7.7)	666289 (15.5)	4308247 (100.0)
1984–85	3871569 (78.9)	395128 (8.0)	642342 (13.1)	4909039 (100.0)

Source: Central Statistical Organisation, Department of Statistics, Ministry of Planning, Government of India: National Accounts Statistics (different issues).

Note: Figures within brackets indicate percentage to total.

domestic saving in India at current prices increased from 71.8 per cent in 1970–71 to 78.9 per cent in 1984–85. The fact that more than 75 per cent of the gross domestic saving in India (in 1984-85) is contributed by the household sector points out that it is in the household sector that the major part of the domestic saving of an underdeveloped country originates. Since as large as 78.9 per cent of the gross domestic saving in India is contributed by the household sector, the analysis of the effect of monetisation on the forms of domestic saving

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TABLE 5

FORMS OF HOUSEHOLD SAVING IN INDIA AT CURRENT PRICES (AMOUNT IN RS. CRORES)

Year	1970–71	1971–72	1972–73	1973–74	1974–75	1975–76	1976–1977	1977–78
(A) Financial Assets	1,371 (38.7)	1,550 (38.7)	2,067 (47.2)	3,612 (53.1)	2,374 (37.2)	3,918 (49.2)	4,909 (50.3)	5,451 (50.1)
(i) Currency	345 (25.2)	381 (24.6)	616 (29.8)	812 (22.5)	17 (0.7)	321 (8.2)	1,134 (23.1)	708 (13.0)
(ii) Net deposits	265 (19.3)	572 (36.9)	723 (35.0)	1,260 (34.9)	1,017 (42.8)	1,131 (28.9)	1,857 (37.8)	2,720 (49.9)
(iii) Shares and debentures	94 (6.9)	63 (4.1)	26 (1.2)	44 (1.2)	137 (5.8)	115 (2.9)	195 (4.0)	262 (4.8)
(iv) Net claims on Government	(–)12 (–0.9)	(–)240 (–15.5)	(–)194 (–9.4)	434 (12.0)	(–)95 (–4.0)	742 (18.9)	84 (1.7)	(–)117 (–2.2)
(v) Life Insurance Funds	189 (13.8)	216 (13.9)	262 (12.7)	326 (9.0)	322 (13.6)	385 (9.8)	480 (9.8)	559 (10.3)
(vi) Provident and Pension Funds	490 (35.7)	558 (36.0)	634 (30.7)	736 (20.4)	976 (41.1)	1,224 (31.3)	1,159 (23.6)	1,319 (24.2)
(B) Saving in Physical Assets	2,168 (61.3)	2,457 (61.3)	2,311 (52.8)	3,195 (46.9)	4,010 (62.8)	4,042 (50.8)	4,844 (49.7)	5,440 (49.9)
Total net household Saving	3,539 (100.0)	4,007 (100.0)	4,378 (100.0)	6,807 (100.0)	6,384 (100.0)	7,960 (100.0)	9,753 (100.0)	10,891 (100.0)

Source: Central Statistical Organisation, Department of Statistics, Ministry of Planning, Government of India: National Accounts Statistics, 1978, 1982 and 1987 issues.

Note: Figures in brackets indicate percentage to total and sub-total.

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TABLE 5 (Contd.)
FORMS OF HOUSEHOLD SAVING IN INDIA AT CURRENT PRICES (AMOUNT IN RS. CRORES)

Year	1978–79	1979–80	1980–81	1981–82	1982–83	1983–84	1984–85
(A) Financial Assets	6,658 (46.3)	6,081 (45.1)	8,392 (48.2)	9,381 (52.3)	12,340 (60.7)	14,247 (54.8)	18.398 (59.7)
(i) Currency	1,482 (22.3)	1,338 (22.0)	1,628 (19.4)	987 (10.5)	2,043 (16.6)	2,768 (19.4)	2,978 (16.2)
(ii) Net Deposits	2,742 (41.2)	1,650 (27.1)	3,038 (36.2)	3,000 (32.0)	4,348 (35.2)	4,432 (31.0)	6,048 (32.9)
(iii) Shares and debentures	175 (2.6)	214 (3.5)	328 (3.9)	419 (4.5)	791 (6.4)	1,004 (7.1)	1,517 (8.2)
(iv) Net claims on Government	31 (0.5)	465 (7.7)	490 (5.9)	1,580 (16.8)	1,212 (9.8)	1,791 (12.6)	2,920 (15.9)
(v) Life Insurance Funds	648 (9.7)	739 (12.2)	850 (10.1)	973 (10.4)	1,152 (9.3)	1,290 (9.1)	1,408 (7.6)
(vi) Provident and Pension Funds	1,580 (23.7)	1,675 (27.5)	2,058 (24.5)	2,422 (25.8)	2,794 (22.7)	2,962 (20.8)	3,527 (19.2)
(B) Saving in Physical Assets	7,709 (53.7)	7,388 (54.9)	9,020 (51.8)	8,560 (47.7)	7,982 (39.3)	11,768 (45.2)	12,401 (40.3)
Total net household Saving	14,367 (100.0)	13,469 (100.0)	17,412 (100.0)	17,941 (100.0)	20,322 (100.0)	26,015 (100.0)	30,799 (100.0)

Source: Central Statistical Organisation, Department of Statistics, Ministry of Planning, Government of India: National Accounts Statistics, 1978, 1982 and 1987 issues.

Note: Figures in brackets indicate percentage to total and sub-total.

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in the country undertaken in the following pages, is done with regard to household savings. Besides, the form in which the households hold their savings is important since the households are motivated to save by their need for future income and security, the income motive and the security motive, and all forms of savings do not yield the same rates of return and growth of capital.

Forms of Household Savings

Data contained in Table 5 show the different forms in which household savings are held in India and changes in the relative significance of these forms during the period from 1970–71 to 1984–85. The data reveal a gradually increasing shift of household savings from physical assets to financial assets during the period. While only 38.7 per cent of total household savings in the country was held in the form of financial assets in 1970–71, financial assets accounted for 59.7 per cent of total household savings in 1984–85. In contrast, the share of physical assets in total household savings had decreased from 61.3 per cent to 40.3 per cent during the same period.

Though the share of physical assets in total household savings had declined from 61.3 per cent in 1970-71 to 40.3 per cent in 1984–85, the share of physical assets is still large. Since savings can be made available for investment and capital formation, in accordance with Plan-priorities, only by converting them first into financial forms, the large share of physical assets in total household savings in the country indicates that a large part of the domestic savings in the country is not yet available for purposes of capital formation and economic development in the country.

Two possible reasons for the relatively high share of physical assets in total household savings in India are: first, commodities are bound to be the major form of saving in an underdeveloped country, which is in a process of slow transition into a developed country, since commodities formed the only form of saving in a barter economy which any country was in the past; and second, physical assets are preferable, as store of value, to money and bank deposits during a period of inflation during which money and bank deposits depreciate, while physical assets appreciate in value.

However, the gradual increase in the relative share of financial assets in total household saving in India from 38.7 in 1970-71 to 59.7 per cent in 1984-85 supports the hypothesis formulated earlier that the process of economic development leads to increasing monetisation of an economy giving rise to increasing financialisation of household savings in the country.

The hypothesis is verified using the data on monetisation of the Indian economy and the share of financial assets in total household savings in the country during the fifteen year period from 1970–71 to 1984–85. The methodology adopted is to consider the index of monetisation as the independent or causal variable and the share of financial assets in total household savings as the dependent variable. Assuming a linear relationship

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between the two variables, the following econometric model is estimated using the method of ordinary least squares:

$$Y = a + bX + e$$

where X = index of monetisation of the Indian economy
Y = share of financial assets in total household savings.
'a' and 'b' = parameters
e = the random error term

The obtained result is as follows with the standard errors of the estimaties presented below them within brackets:

$$\hat{Y}_i = \underset{(2.775)}{38.87} + \underset{(0.898)}{3.6} X_i \qquad R^2 = 0.48 \quad n = 15$$

The positive sign of $\hat{b}$ indicates that as the economy becomes increasingly monetised, the share of financial assets in total household savings increases. The parameter estimates are also found to be statistically highly significant. The result proves the hypothesis developed above, that as an economy becomes increasingly monetised, the share of financial assets in total household savings in the economy tends to rise. It may, however, be noted that monetisation can explain only 48 per cent of the share of financial assets in total household savings in the country. It can even then be pointed out that nearly half of the variations in the share of financial assets in total household savings in the country is explained by monetisation.

Since household savings can be made available for investment purposes only if such savings are first converted into financial assets, the increasing finan cialisation of household savings, which monetisation gives rise to, tends to induce further development of the economy. Economic development and monetisation tend to reinforce each other giving rise to a cumulative process of economic development of a country.

Conclusion:

The foregoing analysis brings out the effects of economic development on monetisation and the consequences of monetisation on the forms of household savings in a country. The Indian economy had registered 68 per cent growth in terms of real gross national product during the period from 1970–71 to 1984–85 and 30 per cent growth during the same period in terms of real per capita income. This growth of the economy had given rise to increasing monetisation of the Indian economy as is clear from an increase in the index of monetisation from 1.00 to 5.54 during the same period thereby supporting the hypothesis that the economic development of a country leads to increasing monetisation of its economy. Monetisation in its turn causes increasing financialisation of household savings in the country as is clear from the fact that with an increase in the index of monetisation of the Indian economy from 1.00 to 5.54 during

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the period from 1970–71 to 1984–85, the share of financial assets in the total household savings in India increased from 38.7 per cent in 1970–71 to 59.7 per cent in 1984–85. Since household savings can be made available for investment purposes only if such savings are converted first into financial assets, the increasing financialisation of household savings, which monetisation gives rise to, induces further development of the country's economy. Economic development and monetisation tend to reinforce each other giving rise to a cumulative process of economic development of a country.

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INDIA'S NEW POLICY APPROACH TO MULTINATIONAL CORPORATIONS AND TECHNOLOGY TRANSFER

K. K. SUBRAHMANIAN

Introduction

Recently, the National Front Government has announced a number of policy measures for the promotion of small scale and agro-based industries and changes in procedures for industrial approvals, foreign collaboration etc. which set out the contours of India's new industrial policy and approach to multinational corporations and technology-transfer.[1] These procedural changes widen the scope to bring into operation the play of market forces and more significantly of multinational corporations. To illustrate, the New Industrial Policy announces that "in respect of technology transfer, if import of technology is considered necessary by the entrepreneur, he can conclude an agreement with the collaborator, without obtaining any clearance from the government, provided that royalty payment does not exceed 5 per cent on domestic sales and 8 per cent on exports". Further, with respect to foreign investment, "keeping in view the need to attract effective inflow of foreign technology, investment up to 40 per cent of equity will be allowed on an automatic basis".

It is apparent that the New Industrial Policy is marked by a thrust on reduction in the degree of domestic protection and a stress on the "unrestricted" import of foreign capital and technology. In other words, the earlier policy of "selective" regulation in regard to import of foreign capital and technology is being replaced now by a "liberal" policy for the entry and operation of foreign capital and multinational corporations. The policy direction is to prefer foreign equity participation rather than foreign borrowing. The question of foreign control has become irrelevant in the new approach. The rationale of the new policy approach is that Indian industry must be made more competitive internationally and for this it needs to be released from the bureaucratic shackles of controls and regulations concerning industrial licensing, foreign collaborations, capital goods imports etc. The new policy approach thus assigns a larger and "free" role to foreign capital and technology transfer.

[1]See the Text of the Policy Statement announced by the Industry Minister in the Lok Sabha on May 31, 1990.

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Indeed, in a sense, industrialization is a process of acquiring technological capability in the course of continuing technological change.[2] And technological capability is enhanced by technological changes, which in a developing country context come through the interaction between the processes of import and indigenous development of technology-embodying inputs and information. Yet, a policy of "unrestricted" import of technology and "free" play of multinational corporations may have serious implications on the economy and hence remain controversial. In order to appreciate the new policy approach to MNCs and technology-transfer it may be useful to place it in the background of an overview of our own experience in managing technological change under a relatively "restrictive" *vis-a-vis* "liberal" policy phases in the past. This is what is attempted in this paper.

Phases in Government's Policies

During the post-independence period India regarded science and technology as a basis of economic progress. The broad development strategy provided by the Mahalanobis Model and pursued for a long period since the Second Plan was one based on heavy industry biased and import-substitutive industrialization in a mixed economy framework. The process of development was seen as one of increased rate of accumulation which would be progressively utilized in the production of capital goods and other technology-embodying inputs (including human resource factor) in order to take the course of economic development on a self-reliant growth path. The recourse to import of foreign capital and technology was also pursued but it was generally restricted through a network of selective regulations on the terms, conditions and areas of operation. The broad strategy of planning and policy enunciated in the Second plan remained broadly stable (with occasional "swings" towards a relatively liberal posture in emphasis) and guided technological progress and industrial growth until the close of the seventies. However, towards the latter part of seventies an intense dissatisfaction began to emerge and the industrial/technology policies of the government began to get modified by stages towards liberalization and outward orientation. Since the early eighties the government introduced a number of policy changes, which in the main aimed to change the protected and inward looking industrial system into one more open to competition and foreign participation with the hope that the policy environment would facilitate Indian firms to import modern technologies and innovate and thereby increase their technological capability for achieving cost-competitiveness and higher growth rate.

Thus, one can distinguish two broad phases of technological progress in the Indian industry since the sixties: one marked by the dynamics of technology management by micro-agents in a "protected" environment and the other one

[2]H.Pack and L.E.Westphal, Industrial Strategy and Technological Change: Theory Versus Reality, *Journal of Development Economics,* 22,1986, p. 106.

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in a "competitive" environment. A comparative assessment of the outcome may give rich dividends on the directional relationship between technological progress and industrial performance under different technological progress and industrial performance under different policy "regimes". This is of particular relevance today as the new industrial policy announced by the National Front Government is regarded in some quarters as the "faithful carry over" of the market-oriented and import-intensive liberalization policy initiated by the previous government in the eighties.

Technical Progress and Industrial Output Growth

In the ultimate analysis, technological progress should get reflected in the growth performance of the industrial sector. Indeed, during the post-independence period Indian industry witnessed some significant qualitative changes: the economy built up a substantial and more diversified modern industrial sector capable of producing a variety of producer goods reflecting the increased technological capability to move on the path of industrialization with greater self-reliance. In quantitative terms, however, the overall growth rate remained much below the plan targets and also the achievements of several newly industrializing countries such as South Korea or Brazil. An initial high growth rate in the industrial sector was followed by stagnation for a long period since the mid-sixties. In the recent years, the growth rate has come close to and perhaps exceeded the record of the initial period and thereby showed the signs of rapid recovery/acceleration (see Table 1). The magnitude of the growth rate

TABLE 1
ANNUAL AVERAGE GROWTH RATE (EXPONENTIAL) OF THE REGISTERED MANUFACTURING SECTOR

Period	% growth rate in value-added
1951–52 to 1964–65	7.87
1964–65 to 1974–75	3.90
1974–75 to 1987–88	6.75
1979–80 to 1987–88	7.60
1950–51 to 1987–88	5.30

Source: C.S.O. National Accounts Statistics.

achieved in different periods may vary depending upon the type of data set used, yet the fact of deceleration since the mid-sixties and the recovery started in the late seventies and manifested clearly in the eighties, remain rather undisputed.

There is however no consensus on the underlying causes; the more articulated explanation hinges upon the government's policy regimes. Some would regard the protectionist policy as the basic cause of stagnation since mid-sixties and attribute improvements in the industrial performance in the

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eighties to the competitive environment, internal as well as external, created by policy liberalization. In contrast, there is also the widely held view that the deceleration since the mid-sixties was due to some structural constraints such as slow rate of public investment and domestic demand rather than the policy regime *per se*. Further, the improved industrial performance in recent years is coincided with a higher rate of growth of demand due to an expansionary fiscal and monetary policy. To say the least, the causality between the policy regime and the industrial performance is yet to be corroborated.

As far as technology sphere is concerned, it has been argued in some quarters that the network of government regulations operated in the protected industrial economy led to a system of interlocking constraints and caused the obsolescence in technical progress and, consequently, retarded the growth of productivity of the manufacturing sector. By implication, the restrictive technology policy of the government denied the firms the access to import fast

TABLE 2

TRENDS IN FOREIGN COLLABORATION APPROVALS

Period	Annual average		
	Number of all cases	Cases involving foreign capital	Col. 3 as % of Col 2
1	2	3	4
1960–64	356	131	36.7
1965–79	239	42	17.5
1980–84	583	102	17.5
1985–88	965	265	27.5

Source: DST, Directory of Foreign Collaboration.

changing technologies from advanced countries and thereby contributed to their technological stagnation. In contrast, after policy liberalization, the country witnessed a fast increase in the number of foreign collaborations including foreign capital participation approved in Indian industries (see Table 2). The period, as said earlier, also coincided with a higher growth rate in industrial output as a whole. It is therefore tempting to infer a correlation between liberal policy regime and technological progress and its favorable impact on output growth. But the causality needs to be examined more closely. In particular, we should know whether the supply of the state of the arts technology from MNCs was hindered during the period of "selective" regulation. Will liberalization *per se* ensure an improvement in technological capability of the firms without rendering them to raise their technological dependence? These and similar questions need to be examined closely.

Price responsiveness of technology supply.

In dealing with the questions it is important to be clear that an improvement in the technological capability can be seen in the progress made over time in

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developing major technology-embodying inputs through a process of external acquistion backed up by internal R&D efforts. The external acquisition (technology- transfer), which is an important stage in building up technological capability, is by and large a commercial process of buying various technology elements either separately or in a package from the international market, that is, more often than not, oligopolistic in structure. Much of technology trade is with multinational corporations and is for a technology package and therefore is not based on arms-at-length transactions. Consequently, the prices get settled by the relative bargainging power of the technology-supplying MNCs and the technology-buying firms in India. A nation's technology-import policy is *inter alia* intended to strengthen the technology-buyers' bargaining power *vis-a-vis* technology suppliers (MNCs) so as to minimize the cost of technology imports[3] And, it has been shown with empirical evidence that the regulatory policy in India did help reduce the cost of technology import.[4] But, there is also a view that what generally an Indian firm acquired at reduced cost is the outdated technology and hence remained technologically stagnant.[5] In somewhat variance with this belief, a survey of the exporters of technology in Europe had suggested that "in vast majority of cases (more than 80 per cent) and in most of the sense that matter, the technology supplied to the Indian firms was most modern available to the suppliers".[6] Indeed, in the case of next generation technology they would either not sell it or would not part with it unless they can significantly expand their control, markets and overall profits. The point for emphasis is that motivations of MNCs for sale of technology are far more complex than just maximizing the price from particular sales of technology. In other words, Indian firms may not get access to frontier technology just because they are free to offer a higher price *per se* under the liberalized policy regime. This, however, is not a defence of the regulation as it was practised in India during the period since the mid-sixties. But, rationale of regulation need not be questioned though a case can be made for certain reforms of the regulatory-policy pursued in the past.

Development of Technology-embodying Inputs

We now examine the question of technological capability as reflected in the development in technology-embodying inputs: Can Indian industry claim to have made considerable build-up in its technological capacity during the "protective" policy regime? In this context the relatively high rate of growth of

[3]Ashok Desai, *Technology Import Policy in the Sixties and the Seventies:Change and the Consequence*, National Council of Applied Economic Research, New Delhi 1982 (mimeo).
[4]See K.K. Subrahmanian, Technology Import: Regulation Reduces Cost, *Economic and Political Weekly,* Vol. XXI, No. 32, 1986.
[5]See for example, Ashok Desai, Indigenous and Foreign Determinants of Technical Change in Industry, *Economic and Political Weekly,* Vol. XX, No. 1985 (Special Number).
[6]Martin Bell and Don Scott-Kemmins, Technology Import Policy: Have the Problems Changed?, *Economic and Political Weekly,* Vol. XX, No. 1985 (Special Number).

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capital goods production during the period reflected the increasing level of national technological capability at least in the limited sense of the mastery of the manufacturing technology of the "standard modern" variety. Paradoxically, however, the creation of production capacities for increasing product range for a limited domestic market under protection resulted in uneconomic scale of production, less degree of specialization and lack of competitive stimulus for cost-reducing technological innovations. Another significant aspect of technology-capability building process during the period under review was that much of technology- transfer from developed countries and the multinational corporations took place through licensing contracts (technical collaboration) and much of foreign investment was in the form of foreign minority equity participation. In other words, the selective regulation enabled the firms to acquire technology with less degree of foreign control.

As for other technology-embodying inputs like human resource development, domestic R&D infra-structure, the progress achieved during the period of protection was creditable. The number of S&T degree holders per thousand of population increased from 1.04 in 1960 to 2.65 by 1980 and the proportion today is estimated at around 2.97. Clearly, the rate of increase in the stock of S&T personnel in the country has been rapid and its stock is quite sizeable. As for R&D infrastructure the number of research institutions in the country which was 11 on the eve of independence increased to 63 by 1960 and further to 555 by 1980. Besides, manufacturing firms established in-house R&D units and such of those recognised by the government numbered 750 in 1981-82 as compared to 400 in 1975 and 13 in 1950. Clearly there was an attempt at building up a vast network of R&D institutions and infrastructure during the period under review. Did the technology-embodying inputs developed and the foreign technology imported during the period help in raising the technological level? Was the progress made different as between the two phases of policy viz., protection and liberalization.

Technology Management under Protective Policy Regime

Did the protectionist strategy and regulatory policy shape an environment for improving the technology capability of the micro-economic agents (firms) and in what directions technological changes were managed? A study[7] analyzing the relationship between the expenditure on technology-import with the expenditure of in-house R&D for the period 1964–65 to 1980–81 suggested that the Indian firms generally backed up technology-import with inhouse R&D efforts. The protectionist strategy and the regulated policy influenced the firms to behave in the following pattern: The firm initially incurred relatively large expenditure on importing technology to domestically manufactured

[7]K.K. Subrahmanian, Towards Technological Self-Reliance, in P.R. Brahmananda and V.R. Panchamukhi (ed.), *The Development Process of the Indian Economy,* Himalaya Publishers, Bombay, 1987.

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import-substitutes because it was technologically weak and hence required the import of technology-elements mostly in a package. With the productionizing of the imported technology the need for local adaptation arose and propensity to invest on adaptative R&D increased. This was so especially in a compulsive environment created by government policies on import restriction, foreign exchange control etc. The fiscal and other policies providing incentives for R&D added to the stimulus. The overall effect on the firms's technology management was one of raising expenditure on R&D relative to the expenditure on account of increased dependence on technology import.

It, however, did not follow that the compulsive influence of Government policy and the cumulative effect of consequent incremental innovations led Indian industries to be technologically dynamic and competitive. The adaptative R&D under protective policy was generally confined to down-scaling the process knowhow to suit the small domestic market, to carry out detailed engineering, and to substitute imported inputs by local materials which helped improving technological capability in manufactruing products to given designs and specifications with minimal foreign exchange cost. But the progress in developing new designs/processes keeping in line with changes taking place in the international market was limited. The protective policy obviously did not create conditions for the firms to upgrade the technology in use or introduce cost-effective innovations because there was no competitive stimulus for such a technological behavior. It is in this sense that one could say that managing the technological change in Indian industry was constrained by the protectionist policy regime. For, protection obviously did not widen the market and provide an incentive structure of competition required for stimulating cost effective technological changes in line with the changes in the world technology.

Technology Management under Liberalization

Can it be said that the firms changed their strategy in technology management under policy liberalization in the eighties and improved their technological capability and if so in what direction? At the outset, the data available for the period being scanty a rigorous analysis of the impact of liberalization is difficult at this juncture. Nevertheless, certain unhealthy tendencies in the technology management under the liberalized policy regime can be discerned. Particular mention may be made of a disturbing tendency of a slow-down in the R&D consciousness of technology-importing firms and the private sector in general. This is indicated by the relative decline in the share of private sector in total national expenditure on industrial R&D (see Table 3). During the period of protective policy the expenditure of the private sector on domestic R&D had increased to a level that eventually crossed the government expenditure on industrial R&D. Thus by 1980–81 the share of private sector had reached 51 per cent of the total estimated national expenditure in the

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industrial sector. By 1985–86 the corresponding figure declined to 45 per cent. To cite another piece of evidence, R&D expenditure as a percent of sales turn-over of firms in the private sector had declined from 0.78 per cent during the period 1975–76 to 1979–80 to 0.65 per cent in the period 1980–81 to 1984–85 (see Table 4). Yet another way of illustrating the point is to examine the growth trends in expenditure on inhouse R&D by the firms. Here again it is seen that the growth rate (13.65 per cent) is lower in the period 1981–82 to 1984–85 than what was recorded (17.93 per cent) during the period 1976-77.(see Table 5).

TABLE 3

SHARE OF PRIVATE SECTOR IN TOTAL NATIONAL EXPENDITURE ON INDUSTRIAL R & D

Year	R&D	R&D and related S&T expenditure	R&D in the industrial sector*
1958–59	0.65	0.52	10.52
1965–66	3.55	2.85	—
1970–71	10.45	8.41	39.45
1975–76	11.87	10.64	45.34
1980–81	15.87	14.83	51.20
1985–86	12.17	11.32	45.00

*This is the sum of R&D expenditure by government agencies directly connected with industrial sector (SIR + DST + DE) and the inhouse R&D expenditure of the firms.

Source: Data from Department of Science and Technology.

TABLE 4

R&D EXPENDITURE AS % OF SALES TURN-OVER OF FIRMS IN THE PRIVATE SECTOR

Year	%	Year	%
1975–76	0.76	1980–81	0.77
1976–77	0.71	1981–82	0.76
1977–78	0.78	1982–83	0.50
1978–79	0.79	1983–84	0.52
1979–80	0.85	1984–85	0.72
Average	0.78	Average	0.65

Source: as in Table 3.

There is thus scattered evidence to feel that neither is there a compulsive environment (induced by govrnment policy) nor is there an adequate incentive structure of tne market for molding the firms' technology management decisions in favor of domestic R&D under the regime of liberalization. The incentive of the market may be biased in favor of import for maximizing the short-run gains rather than developing internal technological capability in the long run.

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TABLE 5

TRENDS IN EXPENDITURE ON INHOUSE R&D (1970–71 PRICES)

Rs. Lakhs

Year	Public sector	Private sector	Total
1976–77	1915	2920	4835
1977–78	2175	3377	5553
1978–79	3141	4319	7460
1980–81	3851	5381	9235
ACG 1976–77 to 1980–81	19.71	16.09	17.93
1981–82	4407	6023	10431
1982–83	4634	7455	12090
1983–84	5575	7167	12742
1984–85	7655	7688	15344
ACG 1981–82 to 1984–85	11.71	9.78	13.65

ACG = annual compound growth rate.

Source: as in Table 3.

A Perspective for Assessing the New Policy Approach

To conclude, in defence of the new policy approach, which effectively opens up the door for liberal import of foreign capital and technology, the government may emphasize the imperativeness of globalization of production and cost-competitiveness of Indian industry and, towards that end, the need for de-bureaucratization and strengthening of competitive market. It may say that the liberalization is meant as an incentive for mobilizing NRI (non-resident Indian) investment and seeking modern technology from small and medium foreign enterprises and does not open the economy to the onslaught of multinational corporations. It may even be claimed that multinational corporations would not be interested in the small investment contemplated under de-licencing conditions in the New Industrial Policy.

These contentions however may not be based on empirical foundations. To illustrate, the increased flow of foreign investment since mid-eighties has been mainly due to foreign investment excluding NRI investment: NRI contributed only Rs. 50 crores out of total Rs. 271 crores approved (i.e just 18%) in 1988. Further, it is not the level of investment but the scope for foreign monopoly control that is at stake. The 40 per cent equity limit stipulated in the New Policy by itself is not a guarantee that the foreign investor (MNCs) will not have full management control over the enterprises: the experience of FERA companies testifies that when Indian equity is distributed among the general public and is widespread, even 10 per cent equity in foreign hands will be more than adequate to ensure foreign control over management and technology use in an enterprise.

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In fact, the New Policy could facilitate MNCs to exercise control over Indian industry with limited transfer of technology and very little commitment of risk capital investment. There may not be any meaningful indigenisation programme or import-substitution. The foreign controlled firms as in the past may only function on the basis of maximum import-content and intra-firm trade within the multinational world. Their contributions to export earning may be, as in the past, marginal. Clearly, the balance of payments implications of the New Policy may turn to be unfavorable. To say the least, the changes in the procedures for industrial approvals, foreign investment and collaboration, etc. announced in the New Industrial Policy Statement are largely regressive in content and are potent with serious long-run implications on the economy.

The overview of our past experience as provided in this paper suggests that the policy of protection and regulation is useful in buliding up the technological capability in the direction of improving the manufacturing capability. At the same time the lack of competitive environment makes the firms indifferent to develop the design capability in tune with the changes in the international market with the result that the benefits of higher productivity and output growth would not be significant under the protective policy. It would be desirable therefore to leave the firms to manage the technological change by the incentive structure of the market. This calls for restructuring macro policies from prolonged protection to a more open economic environment. At the same time, policy liberalization for unrestricted import of technology and free entry to MNCs may have the danger of distorting the pattern of technological changes in the direction of indifferent internal learning and continued technolgical dependence. What is therefore needed is a well thought-out selective approach towards foreign investment and technology-import and positive intervention to ensure that the import is backed up with domestic R&D efforts for the industry to move along a dependence-independence continuum of technological capability. In other words, liberalization needs to be planned consistent with the needed economic incentive structure of market in given industries. It stands to reason that the apparent dichotomy between protection and competition must be viewed as a false dilemma so as to get a desirable mix of market (competition) and regulation (protection) modes in policy-making. As for Indian Industry while there is a logic in releasing it from unnecessary bureaucratic shackles, there is still the need for selective and non-discretionary but socially purposeful and effective, regulatory mechanisms to protect and promote the development process with greater degree of autonomy and equity.

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INDIA'S TRADE GAINS FROM JAPAN

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Though from time immemorial, India was involved in international trade, its trade links were largely with Great Britain, whose colony it was, prior to 1947. Only after independence, India experienced an understandable urgency to search for new trade partners, and also to intensify the already prevailing trade. This diversification in trade was a hedge against risk and it helped expansion of the magnitude of trade.

In her quest for new partners in international trade, India found Japan to be advantageous and useful to herself in more ways than one. India received aid from Japan and welcomed Japan's participation, both technologically and financially, in her various developmental projects and private investment collaborations within India. In export trade of India, Japan came to occupy the third place, accounting for Rs. 1,025 crores, out of India's exports of Rs. 11,075 crores (8.75 per cent) in 1984–85; and in India's import trade, Japan occupied the fourth place, supplying mainly machinery and industrial raw materials amounting to Rs. 1,204 crores, out of India's total imports of Rs. 17,134 crores (7.24 per cent) in 1984–85.[1] However, it should be stated that India occupied a very insignificant place in Japan's trade—just around one per cent each in its exports and imports in 1986.[2]

The present study of India's gains from its trade with Japan covers the period of eight years from 1977–78 to 1984–85. The choice of a relatively shorter period of eight years is largely owing to convenience and necessity, for India adopted a new Trade Classification Revision-2 since April 1, 1977. Data supplied by the Directorate General of Commercial Intelligence and Statistics, Calcutta, for the purposes of compilation and presentation of trade data, would be uniform for the eight years in question. This is the practicability involved in

[1] Directorate General of Commercial Intelligence and Statistics, Calcutta. *Monthly Statistics of Foreign Trade of India, Volume I: Exports and Reexports., Volume II: Imports,* March 1985.
[2] Japan's External Trade Organisation, *White Paper on International Trade*, 1986.

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choosing the above eight years. Any attempt at including data of the years prior to 1977–78 would likely distort uniformity. Then again, 1984–85 is the last year of the period when annual trade policies were implemented. Thereafter, a new trade policy for three years was announced. Moreover, the fluctuations in the demand and the supply forces could be expected to be minimal in a shorter period than in a longer period. The stability of these forces in the short period would help in the meaningful calculation of unit values of the various commodity groups traded between India and Japan (cf. Appendix 1).

Calculating India's terms of trade with Japan, this study measures the competitiveness of India's trade with Japan, i.e., whether each unit of India's exports to Japan obtained, in return, more units of imports.

The method adopted in this study to work out Net Barter Terms of Trade was as follows: An appropriate weight for each of the various commodity groups exported to and imported from Japan was assigned. The average values in the three years, viz., 1979–80, 1980–81 and 1981–82 for the commodity groups traded between India and Japan, served as the weights, as it was expected that the average values of the three years would avoid the effect of fluctuations so characteristic of a country's exports and imports.

Unit values of each of the commodity groups concerned during the eight years were multiplied by their respective weights. By adding the resultant products, the weighted average unit values for the eight years in question were obtained. The weighted average unit value for 1980–81, each for India's exports and imports, was equated to 100 per cent to arrive at export unit value index and import unit value index, respectively, for 1980–81. The export and the import unit value indices for the remaining seven years were, then, their weighted average unit values, expressed as percentages of the weighted average unit value of 1980–81.

Dividing each export unit value index by the corresponding import unit value index, the terms of trade for each year were calculated. Value of the terms of trade exceeding 100 would show India's advantage in its trade with Japan. Value less than 100, then, necessarily would imply India's trade disadvantage.

A note of caution proved helpful in the calculation of the terms of trade. Export unit value index was calculated from the relevant figures of the thirteen commodity groups which India exported to Japan. Together, the commodity groups accounted for 61 to 85 per cent of India's total exports to Japan during the eight years of the study. The nine import commodity groups from Japan accounted for 25 to 47 per cent during the same period. The calculated import value indices, because of the relatively smaller percentage shares of the import commodity groups, compared to those of the export commodity groups, were only indicative and not imperative of the trade prospects.

Along with India's terms of trade with Japan, those with the rest of the world (ROW) and those with the whole world (World) were also calculated. Estimates are presented in the Table.

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TABLE
INDIA'S TERMS OF TRADE WITH JAPAN, WITH THE REST OF THE WORLD (ROW) AND WITH THE WHOLE WORLD (WORLD), 1977–85

(Base: 1980–81 = 100)

Year	Japan			ROW			World		
	Export Unit Value Index	Import Unit Value Index	Terms of Trade	Export Unit Value Index	Import Unit Value Index	Terms of Trade	Export Unit Value Index	Import Unit Value Index	Terms of Trade
1977–78	80.08	71.76	111.59	89.05	88.95	90.00	79.30	82.44	96.19
1978–79	74.46	48.75	152.73	85.73	92.78	92.40	84.39	71.26	118.42
1979–80	94.77	101.36	93.49	99.02	104.82	94.47	98.28	104.71	93.86
1980–81	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
1981–82	104.77	69.41	150.95	107.15	98.57	108.70	107.32	87.80	122.22
1982–83	100.90	72.19	139.78	128.55	101.91	126.14	125.75	92.36	136.15
1983–84	120.58	97.94	123.11	137.02	118.35	115.78	135.45	111.78	121.17
1984–85	126.96	120.35	105.49	153.75	101.76	151.09	151.58	108.01	140.34

Source: Calculated from data from DGCI&S, Calcutta. *Monthly Statistics of the Foreign Trade of India,. Volume I:. Exports and Reexports, Volume II.: Imports.* March issues of various years.

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As could be observed from the Table, in six out of the seven years during the period, 1977–85 (excluding the base year 1980–81), India experienced favourable terms of trade with Japan as indicated by the values of indices of the Net Barter Terms of Trade exceeding 100. Only in 1979–80, the terms of trade were unfavourable to India. Needless to state that 1979–80 recorded the lowest value in the series. India's unfavourable terms of trade with the rest of the world occurred in a row, viz., 1977–80. India's overall terms of trade were unfavourable only in two years, viz., in 1977–78 and in 1979–80 out of the seven years concerned. Thus, only in 1979–80, India's terms of trade were unfavourable in all the three cases, i.e., with Japan, the rest of the world and the whole world.

In 1978–79, although value index each of export and import was less than the respective value index in 1977–78 in India's trade with Japan, the decrease in import unit value index was larger than that in export unit value index. A fall each in unit value of exports of cut diamonds, coffee, cashew kernels and tea in 1978–79 contributed to a fall in export unit value index. And the steep fall in import unit value index in 1978–79 was largely owing to a fall in unit values of both machinery and communication apparatus. The terms of trade were pushed up to 152.73 in 1978–79.

In 1979–80, due to a rise each in unit value in India's export of cut diamonds and coffee, export unit value index increased to 94.77. But then, import unit value index more than doubled and touched the 101.36 mark, mainly because of the increases in unit values in machinery, transport equipment and communication apparatus. This upward revision in import unit value index was the major cause for the terms of trade to touch 93.49—the lowest figure recorded in the series.

In 1981–82, while export unit value index increased to 104.77, that pertaining to import from Japan fell to 69.41. An increase each in unit value of cut diamonds, fish and fish preparations, cashew kernels and tobacco pushed up export unit value index and a steep decrease each in unit value of machinery and communication apparatus brought down import unit value index to 69.41.

With the rise in export unit value index and the fall in import unit value index, the terms of trade rose to 150.95 in 1981–82.

India's terms of trade with Japan though remaining favourable, experienced a continuous fall from 1981–82 till 1984–85. The indices for the four consecutive years were 150.95, 139.78, 123.11 and 105.49. From 104.77 in 1981–82, export unit value index moved down to 100.90 in the next year, only to rise further to 120.58 in 1983–84, and again to 126.96 in 1984–85. On the other hand, from 69.41 in 1981–82, import unit value index picked up an increasing trend and moved up to 72.19 in 1982–83, to 97.94 in 1983–84 and finally to 120.35 in 1984–85. The increases in export unit value index were not adequate enough to prevent the falling, but favourable, terms of trade.

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An increase each in unit value of the commodity groups, cotton, cut diamonds, tobacco, tea, coffee, oil-cakes and fish and fish preparations mainly increases export unit value index. And that in the commodity groups machinery, transport equipment and communication apparatus accounted for the increase in import unit value index. The resultant effect was the continuous fall in the index of India's terms of trade with Japan.

Although India's terms of trade with Japan were favourable in six out of the seven years, it was not easy to predict how long this state of affairs would prevail.

India experienced an unfavourable balance of trade during the period 1980–85. The conviction today is that expanding India's trade with Japan would be beneficial to the former. It is well known that Indian commodities are quality-wise deficient and India lags very much in developing export promotional measures. If there has to be an expansion of India's exports to Japan, and it is necessary to expand this trade, then the exportables should be qualitatively competitive. Japan sets high standards for goods exported to it. Also there is need for India to reduce the costs of production of the exportables to be able to compete in Japanese market, penetration into which has proved to be difficult. There is also another element in this trade. India should enhance the standards of service to the Japanese buyers. Yet another measure that will pay in the long run towards improving the terms of trade would be increasing the share of the value-added items, and thus decreasing that of the commodities in their raw form in the export basket to Japan. In this effort, India could and should create a favourable climate for Japan to shift its production bases to India, for the production of labour-intensive higher value-added items.

Besides restricting imports, India should seek to produce those goods that serve as effective substitutes for the commodities hitherto imported from Japan.

India's terms of trade with the rest of the world became favourable only after 1981–82. The highest score was 151.09 in 1984–85. Export and import unit value indices in 1984–85 were 153.75 and 101.76 respectively. Fish and fish preparations, tobacco, cashew kernels, tea, cut diamonds and coffee each showed an increase in unit value. However, it must be mentioned that export unit value index continuously rose during the period 1977–85.

On the other hand, import unit value index decreased in 1984–85 from the previous year, owing to fall in unit values of both machinery and organic compounds. Unit price paid to the rest of the world compared to that paid to Japan, especially for these two commodity groups each, was quite low. Thus, India's terms of trade with Japan would have improved in 1984–85, had India abstained from buying these products from Japan. But then, trade persisted for considerations other than costs.

Out of the seven years referred to, India experienced favourable terms of trade with the world in five years. In 1977–78 and in 1979–80, India's terms of trade indices were 96.19 and 93.86 respectively. Export unit value index

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showed continuous increase during the period 1977–85. The increase was from 79.30 in 1977–78 to 151.58 in 1984–85. Import unit value index experienced an increase only from 1981–82 upto 1983–84. India's terms of trade index moved up from 121.17 in 1983–84 to 140.34 in 1984–85; this slow movement was due to a moderate fall in import unit index from 111.78 in 1983–84 to 108.01 in 1984–85, compared to a steep rise in export unit value index from 135.45 in 1983–84 to 151.58 in 1984–85. The commodity groups that caused a fall in the former were machinery and organic compounds; and those that pushed up the latter were cut diamonds, fish and fish preparations, tobacco, cashew kernels, tea and coffee.

To conclude, it should be noted that, for India, trade relations with Japan are precious and valuable. Though the content and the value of this trade have been growing, India's share in Japan's trade both in exports and imports is abysmally low—hardly one per cent. India should strive to at least double this share. But the Japanese market is too tough to penetrate. In order to penetrate such a market, India's efforts should be to develop those commodities which enter into the Japanese trade, such that they are competitive, both in price and in quality. This approach is particularly important in the context of increased efforts towards regional integration.

APPENDEX I

MAJOR COMMODITY GROUPS IN INDIA'S TRADE WITH JAPAN[3]

A. Exports

(i) iron ore and concentrates;
(ii) cotton;
(iii) oil cakes;
(iv) fish and fish preparations;
(v) rose wood;
(vi) chrome ore;
(vii) tobacco;
(viii) cashew kernels;
(ix) tea;
(x) crushed bones;
(xi) cut diamonds;
(xii) coffee; and
(xiii) musical instruments.

[3]Groups formed from individual commodities with export/import value exceeding in any year during 1977–85 an arbitrarily fixed value of Rs. one crore.

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B. Imports

(i) machinery;
(ii) urea;
(iii) iron and steel;
(iv) transport equipment;
(v) communication apparatus;
(vi) organic compounds;
(vii) polyester staple fibres;
(viii) resin compounds; and
(ix) synthetic rubber.

Source: DGCI&S, Calcutta. *Monthly Statistics of the Foreign Trade of India, Volume I: Exports and Reexports; Volume II: Imports*, March issues of various years.

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BOOK REVIEWS

THE EVOLVING INTERNATIONAL ECONOMY

By GRACIELA CHICHILNISKY and GEOFFREY HEAL.

Published by The Press Syndicate of the University of Cambridge, USA, 1986, pp. 156.

Reviewed by DR. U.N. LAKSHMAN, Reader in Commerce, University of Mysore, Mysore-6, India.

International markets are one of the most powerful forces governing the evolution of world economy and must be taken into consideration while analysing the policies concerning it. This book entitled 'The Evolving International Economy' consists of four parts besides introduction. The introduction describes the major economic events that took place in the past one decade, developing countries' role as export markets for OECD, and increasing trade among themselves. It also points out the higher rates of interest, high exchange rate for the U.S. dollar, greater reforms in international financial institutions due to debt problem, export-led policies of many countries, the pricing system of extractive resources, and the South arguing for better prices and the North resisting the South.

Technological change and unemployment, the effects of exports of raw materials and labour-intensive commodities, price of oil, higher interest rates in USA and UK, the debt problem, and the upheavals in the world's financial system—all these remain a gigantic puzzle. This book proposes economic tools for analyzing changes in the world economy.

Part I entitled "Industrial Economies and the International Market" consists of Chapters 2 and 3. Chapter 2 entitled "Domestic Policies" discusses macroeconomic problem and modern industrial structures in the industrial countries. The emergence of new technologies increased the economies of scale in the fields of electronics, telecommunication, and transportation. Making extensive use of information or of telecommunication activities has been characterised as economies of scale. Economies of scale can explain stagflation and inflation.

A market expansion generated by the exploitation of economies of scale is what Adam Smith had in his mind when he saw the extent of the market and the division of labour interacting to raise the wealth of nations. Section 2.9 explains the principles of regulation and increasing returns, namely control over prices, output, and investment decisions to prevent exploitation of monopoly

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power and to ensure an efficient allocation of resources. The author points out that both marginal cost-pricing and "Ramsey Pricing" have failed to produce efficient organisations. This has resulted in deregulation of air transport and telecommuni-cations in the United States and British telecom in the United Kingdom. The chapter concludes that regulation takes care of overall economic efficiency and competition encourages innovation.

Chapter 3 of Part I entitled "Protectionism and the Management of Trade" analyses the factors like unemployment, decline in competitiveness of traditional sectors, high value of the dollar in the United States, displacement of domestic goods as foreign goods became less expensive, and balance of payments deficit which has led to protectionist measures in industrialised countries.

Section 3.2 emphasises the classical theories, which explains that trade arises from comparative advantages and leads to efficient outcomes. The traditional picture of comparative advantage gives a good explanation as to why United States exports food, whereas the United Kingdom imports it. However, comparative advantages cannot explain why Europe imports and the United States exports computers and aircrafts, or why Japan exports automobiles and electronics to other industrial countries. Such trade has little to do with comparative advantages in the traditional sense.

Section 3.3 entitled "Efficient Trade and Economies of Scale" explains why large scale production of computers, aircrafts, automobiles and electronics leads to lower costs. The advantage may be due to technology, high fixed costs of research and development, or due to managerial or organisational efficiency. However, the classical theory assumes that market clearing, Pareto efficiency and gains from trade gives an advantage. Efficiency, also known as Pareto efficiency, means that no redistribution of resources can make some individual better off without someone else being worse off. In an international economy with increasing returns all of the gains from free trade may accrue to just one trading partner, and others possibly even being net losers.

Therefore, active management of trade flows may be required to ensure market clearing and Pareto efficiency. This involves carefully coordinated limits on imports or on exports, or some mutually agreed-upon and compensating transfers from the gainer to the loser. Section 3.4 entitled "Invisible Hand with Large- Scale Technologies" explains the need for invisible hand or price adjustments to achieve gains from trade and the balance between supply and demand, yet the management of prices, of trade flows, or of a combination of both may be needed to achieve efficiency and to clear markets at the same time. From the point of view of supply or productive efficiencty it would be desirable to specialize in trade. Section 3.5 entitled "Management and Protectionism" explains that protectionism is designed to prevent specialisation. The author gives the example of Multifibre Agreement which seeks to delay the trend towards the specialisation of the textile industry in developing countries which presumably offers better prices and products. Less

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explicit policies of this sort exist in other countries, such as steel and various light manufacture.

A fine analysis has been made by distinguishing managed trade and protectionism. According to the authors, efficiency requires appropriate policies to phase out rather than to protect obsolete parts of an industry. They give an example of European policy towards steel where incentives are offered to ease the phasing out of plants in sectors of the industry that have a large minimum efficient scale of operation and cannot compete with Taiwan and Korea. This case proves that managed trade policies cannot be formulated in isolation. The authors emphasise the need to revise the institutional framework governing international trade in view of increasing government involvement in and encouragement of high-technology and export-oriented industries.

Section 3.6 entitled "Trade Policy in a North-South Context" points out with examples as to why specialisation is not desirable between North-South trade. North-South trade consists in typically increasing return products being exported in exchange for decreasing return products. He gives an example of industrial goods which are often produced under increasing returns for labour intensive manufactures or primary products which are produced by decreasing returns. Further, apart from explaining Lewis' model, the author concludes by saying "under the existing circumstances, nothing could be more inefficient for the South than an expansion of labour-intensive exports. Any form of managed trade that seeks overall efficiency will advise against specialisation in such cases." In Section 3.7 the author makes a fine observation: In evolving economic environment the factors that ensure success lead to inflexibilities and strains on their economies. On the other hand, the less productive and less developing countries can adapt faster to changing environment. The author further analyses that in the case of diminishing returns, industrial structures have a degree of inherent stability and will change smoothly, whereas in the case of increasing returns, they may be innately unstable and respond erratically to changes in the economic environment. These factors help to explain why newly industrialised countries adapt easily to the changing world environment. International economic policies must be coherent with domestic economic structures especially when the trading economies exhibit increasing returns to scale. International institutions including international markets must evolve and adapt to the changing economic environment.

Part II entitled "The Role of Developing Countries" consists of 4 chapters. Chapter 4 entitled "Export Strategies" explains why the industrialised countries are refusing to import traditional commodities from developing countries. Primary commodities, labour-intensive manufactures, are facing protectionism in industrial country markets. Export promotion needs active government support. Taiwan is a good example of an economy where the evolution of industrial structure is strongly influenced by the government. At present the most dynamic segment of the international market is the South-South Trade;

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and within South-South trade, the dynamic segment is that of exports of engineering products which are skilled and capital-intensive rather than labour-intensive. Section 4.2 entitled "Classical Trade Theory: Gains from Trade" explains that the labour-rich region exports labour-intensive products and the capital-rich region exports capital-intensive products. The new world prices for capital-intensive goods benefit the capital-rich country. International trade therefore leads to changes in prices that are beneficial to both countries. While discussing classical theory, the author points out that the Heckscher-Ohlin theory is not explaining North-South trade, but rather explains the trade among regions of similar economic characteristics. It is only in recent years that North-South trade has become sizeable and therefore, Heckscher-Ohlin model of international trade requires corresponding change.

Section 4.3 entitled "The North-South Model: Structural Differences between the Traders" explains the differences in technologies and differences in the behaviour of labour and capital markets. Section 4.4 entitled "The Effects of an Export Expansion" explains the controversy that is prevailing between the export-led policies, expansion of capital-intensive exports and expansion of labour-intensive exports and their effects between North and South. Section 4.5 entitled "Dual Economies and the International Division of Labour" explains that relative advantages are a better basis for export policies than those derived from mass poverty. Germany in the 1960, and Japan, Korea and Taiwan are examples of successful exporters with relatively skilled and well paid labour. Latin-American countries have typically relied on mass poverty and their export policies have rather poor outcomes. Section 4.6 entitled "Export Enclaves and Natural Resources" has analysed the terms 'export enclaves' and 'natural resources'. This section explains the exports of labour-intensive products that are produced almost exclusively for export. The author gives the examples of coffee and soybeans in Brazil, bananas in Central America, and tea in Sri Lanka. The export good is called 'enclave' because its domestic content is relatively small and it is not used as a main output of production in other domestic industries. This enclave is disassociated from the domestic economy both on the supply and the demand sides. Section 4.7 entitled "Evaluation of export policies: Is poverty a relative advantage?" discusses the conditions that are necessary for a country to reap the potential benefits from increased exports and analyses cases where export-oriented policies have been successful. The author points out the view expressed by W.A. Lewis that productivity in agriculture sector must be a precondition for industrialisation and for better terms of trade for the developing countries. Section 4.8 entitled "North-South Wealth differentials and the income distribution in the South" explains the interdependency theory of economics and the prevailing market and technological conditions within that economy.

Chapter 5 of Part II entitled "Armaments and North-South Trade" explains the dimension of arms trade from the viewpoint of economic progress of the

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industrialised countries. North-South trade has been characterised as a trade of raw materials and minerals for arms and capital goods. Arms are purchased by the South and the South exports primary commodities. United States is the major beneficiary in the process. For example, a significant fraction of the increase in the United States oil import bill between 1972 and 1974 returned to United States as arms exports to the Middle East. This section not only gives tables and graphs to explain but also gives the names of countries which import arms and the countries which export primary materials.

Chapter 6 entitled "Aid, Trade and Debt" not only explains the steps taken to narrow the gap in wealth between North and South but also expresses pessimism about aid targets. However, the author points out that no one can condemn aid, but it is useful provided stronger domestic markets are set up. The chapter also explains the causes for debt problem. Section 6.5 entitled "Debt and Interdependence" emphasises the need for international dependence, and the weakness in depending on any one commodity for the nation's survival by giving an example of Mexican economy. Further, the section besides pointing out the advantages that the industrialised countries derive from aid also points out the lessons to be learnt by developing countries namely on relying on short-term liquidity and the need to change the international financial system.

Chapter 7 entitled "Resources and North-South Trade" explains the circumstances where higher resource prices are supposed to benefit exporters and lower prices supposed to benefit importers.

Part III entitled "Summary" consisting of Chapter 8 entitled "The Evolving World Economy" reviews the issues like protectionism and managed trade, recent macroeconomic development linked with new technologies, North-South interdependence via international financial markets, export strategies, arms trade and resource pricing. The increased interdependence has taught the world about the practical importance of a more integrated approach to international relations and indeed to international economies. The chapter concludes that the developing countries should not view themselves only as a source of inexpensive inputs rather they should view that they have a role to play as a powerful source of competition in many international markets where skill and enterprise are required.

Part IV entitled "Theoretical Background" consists of Chapters 9 to 12 which contain analytical foundations for some of the arguments used in the previous parts of this book. Chapter 9 of Part IV entitled "Adjustment, Stability and Returns to Scale" discusses the formal arguments that lie behind macroeconomic stability and protectionism and managed trade. This chapter aims to find out how prices, output levels, profits and productivity move over time in an economy with increasing returns to scale. The rest of the chapter has given a fine analysis of the subject by using curves.

Chapter 10 entitled "Large-Scale Technologies and Patterns of Trade" explains the implications of the organisation of international trade by using

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curves and points out that in the economies with increasing returns, it may not be possible to balance supply and demand. Economy may actually tend to stabilize around a non-market clearing position. By using a simple geometric framework the author explains the implications of the institutional framework within which international trade and payments are conducted besides discussing the institutional framework for managed trade. The chapter concludes by remarking that regulations applied to the international market must also be applied to the domestic market. Therefore, these two items have to be harmonised between trading countries.

Chapter 11 entitled "North-South Trade and Export Policies" gives a geometric explanation of the results of export-led policies based on a theory of trade and development. The purpose is to show under what conditions the shortcomings of export-led policies arise, and also to show when it is desirable to increase exports.

Chapter 12 entitled "Aid and Transfers" says the donors gain and recipients lose from a gift. The author has meticulously observed the mechanism of aid and transfers and proved that aid is not aid but it is a loan. It is implied in the chapter that actually money is not moving from the donor countries at all. Thereby aid and transfers improve the donor's terms of trade.

This book is rather complex and probably it is not that easy to understand. However, this book has a real value and gives some thought-provoking ideas regarding the international economy. It may not be an exaggeration to point out that the learned authors have demonstrated their expert knowledge regarding international economy and its related issues. The book is a valuable addition to the field of Economics.

FINANCING PUBLIC SECTOR DEVELOPMENT EXPENDITURE IN SELECTED COUNTRIES (PAKISTAN)

by JAVED HAMID, SHAHID AMJAD CHAUDHRY, MUNTAZAR BASHIR AHMAD and EHSAN ul HAQUE, Asian Development Bank, Manila, Philippines, 1988, pp. 94.

Reviewed by SUCHITRA K. KUMAR, Research Associate, National Centre for Management Development in Agriculture and Rural Development Banking, Bangalore, India.

This study is an outcome of a workshop held at Manila during 15–16 May 1986 to discuss the objectives, scope and methodologies of the study, and to prepare an outline of the country studies of Bangladesh, India, Indonesia, Nepal, Pakistan, Philippines and Thailand. It is a part of the study on financing public sector development expenditure in selected developing member countries (DMC's) of the Asian Development Bank carried out during 1986–87.

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The primary objectives of the study were to review the performance of the public sector during the decade ended in 1985, analyse the nature of the resource constraints confronting the DMC's, identify the factors which have been at work in adversely affecting the public sector savings and examine the various approaches or methods for improving the saving performance of the sector.

This study is divided into 5 chapters. The level of investment in Pakistan is low by international comparison and possibly not consistent with the reported growth of over 6% per annum, attained during the last few years. Investment and savings level has fallen. Almost the entire decrease in investment has occurred in public investment with private investment showing a marginal improvement. It is not clear whether Pakistan requires a substantial increase in the public sector investment programme in sectors where the import components are high—the real need is for increases in expenditure on health, education, and housing. These are discussed in detail in this study. The nature and extent of the resource gap and its economic impact is discussed in Chapter I.

An overview of the Pakistan budgetary situation is discussed in Chapter II by analysing the following issues, viz.,

(i) Does the general Government (Federal and Provincial) in Pakistan spend more or less than governments in other countries (a) in aggregate and (b) for individual sector? What explains this deviation? Can this be improved upon?

(ii) Are the Pakistani people overtaxed/undertaxed as compared with those in other countries (a) in overall burden and (b). for individual taxes? Is the situation in Pakistan optimal?

(iii) How does the Federal Government (which is the only government allowed to borrow from monetary authorities abroad) meet its deficit as compared to governments in other countries? Does Pakistan need to make any major changes in policy? For this a comparison is made of the level and composition of Pakistan's Federal and Provincial Government expenditures with other countries' general Government expenditures.

Chapter III discusses in detail the Federal budgetary situation and Chapter IV makes an in-depth study of the Provincial budgetary situation.

Chapter V has discussed the savings performance of public sector enterprises after discussing various aspects such as size of the public enterprise sector, organisational form, competitive position, its performance in terms of social and commercial goals. Savings performance of selected PSEs is also evaluated. Besides these, the investment and resource gap and problems of PSEs are examined. After studying the typology of the PSEs, reviews of four case-studies of PSEs are made. This is followed by the recommendations of the study group. This enlightening study is very useful and beneficial to researchers, teachers, administrators and financial experts.

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POVERTY AND SOCIAL SECURITY

By Prof. A.B. ATKINSON, Harvester Wheatsheaf, Hertfordshire, 1989

Review by DR. S. SHIVA RAMU, Professor, Indian Institute of Management, Bangalore

Whenever one sees a book on poverty, the immediate recall would be the issues of poverty in less developed countries, where billions are under deprivation, whose improvement in a foreseeable future looks like "waiting for Godot". Atkinson's book on Poverty and Social Security is mainly concerned with the poverty and various policy applications adopted in the United Kingdom. This volume has 18 chapters. These are divided into 3 parts with equal number of six chapters. Part I deals with Poverty, Part II is concerned with Social Insurance and Social Assistance and Part III deals with Reforming Social Security and Income Taxation in the United Kingdom.

The focus of the chapters in Part I is on poverty and its measurement problems. Chapter 1 deals with the conceptual issues in the measurement of poverty. Various indicators are used such as consumption of specific goods, total expenditure and total income. These three different approaches give different answers for selecting the target group. These approaches lead to two identifiable conceptions of poverty. One deals with *standard of living* on the basis of studying the total expenditure and the second conception of poverty deals with *the right to minimum level of resources* which has a priority of distributive principles. However, one can find that there are differences in values and judgments. It may be necessary to have a comprehensive kind of information which can give a better picture of whether a family is in poverty or not.

The second chapter deals with the measurement and procedures adopted to identify the poverty segment in the society. This chapter deals with the three issues, viz., the choice of poverty line, the choice of poverty measurement and the relations between poverty and inequality. On the measurement of poverty line, there are several alternatives like head count, normalised deficit, Watts measure, etc. The analysis gives the difference between different measures in estimating poverty level. The chapter also discusses the relations between poverty and inequality . The poverty gap at different values of the poverty line would give an unambiguous conclusion. It would be a useful criterion for practice.

Chapter 3 deals with poverty in Britain from 1930s to 80s. The different studies are compared. The trend of poverty over time is identified. One finds that the absolute standard of poverty is an elusive concept. There is a shift in social values during the period. It also demonstrates "failure of the 'safety net'" which in turn gives the performance of social security measures in UK.

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Chapter 4 deals with poverty in York —a Re-analysis of Rowntree's 1950 survey.Although using the same survey data as Rowntree's poverty in 1950, the criterion of poverty was different. Rowntree adopted household as the basis whereas national assistance is based on family as a unit. The comparion of different poverty lines between 1930 and 1980 gives the changed poverty line. Though Rowntree's approach was relevant in assessing poverty line, the national assistance standard was relevant in the post-war welfare state.

In Chapter 5 the inter-generational continuity in deprivation is analysed. This was based on the information available from Rowntree survey of 1950 and this survey was a follow-up of the generation from 1975 to 1978. This indicates that the "children of families with low income in 1950 have nearly twice the chance of having low incomes themselves as those whose parents did not have low incomes." The major indicators which provide deprivation were in terms of housing, family status and job instability.

In Chapter 6 the author tries to analyse and interpret poverty. He tries to differentiate between '*securing* a minimum standard of living' and '*right* to a minimum level of resources'. There are two routes in the search for securing the rights of citizens to a minimum level of resources, i.e., to reaffirm the traditional goal of jobs for all and second the introduction of a basic income guarantee for all. The author suggests either one of them would be acceptable as an objective to remove the problem of poverty in UK.

Part II deals with social insurance and social assistance. In developed countries there are three elements in social security, viz., income-tested social assistance, social insurance and redistribution between specific groups. These issues are covered in this part.

Chapter 7 deals with social insurance and income maintenance. There are two different directions against social insurance schemes. One is to replace social insurance by a basic income guarantee and the second one is that income tested benefits would provide a better value for money. Along with this, it is suggested to privatise insurance instead of social insurance. The experience of UK in 1970s has been declining. This regression was due to the introduction of new income tested benefit and rebates in 1966. The alternative considered for social insurance is private insurance. However, the author feels that there is not enough systematic analysis to find out the shortcomings of private provision *vis-a-vis* state pension system. The second alternative is to return to income testing and the third alternative of basic incomes. A pure economic analysis of social insurace may not give a proper perspective of the impact of social insurance on the economy. Many questions are raised regarding public choice approach in determining government policy.

Chapter 8 analyses the benefits for the unemployed during the decade of 1979–88. Thirty-eight significant benefits have been made to national insurance unemployment benefit and income tested assistance to the unemployed. Majority of these measures have unfavourable effect. The author lists out the

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changes and their effect. This chapter is mostly concerned with the changes in policy towards income support for the unemployed. There is no detailed discussion about the merits of social insurance of the income tested alternatives.

Chapter 9 deals with unemployment benefit duration and incentives in Britain. It is normally assumed that unemployment insurance system would tend to lead to a longer duration than if there was no such insurance scheme. However, the empirical investigation reveals that the claim is not supported by the empirical investigation. Most of the conclusions are based on prior belief. As such the author suggests that this is due to a "limit of our knowledge". As such he has suggested a detailed data collection and studying with an appropriate statistical analysis.

Chapter 10 deals with poverty trap in Britain. This is different as a "situation where a family is both in receipt of means-tested benefits and liable for income tax". One suggestion to remove the trap is either to increase the tax threshold or reduce the means-tested benefits. The author gives various alternatives on the basis of the inferences.

In Chapter 11 he takes up the social security benefits. That is the problem of incomplete take-up by the concerned people who are entitled for social security benefits. This indirectly indicates the ineffectiveness of the social security scheme. The author differentiates the measurement of non-take-up "as an indicator of the lack of effectiveness of a particular benefit and non-take-up as a cause of low incomes". He suggests that there should be an attempt to increase the scope for improving the reliability of the estimates on the basis of Family Expenditure Survey. Additional statistical analysis would provide better information regarding take-up of social security benefits.

Chapter 12 deals with family income supplement and two-parent families from 1971-80. This gives a historical review of the family income supplement which was replaced by Family Credit in 1988. The Family Credit scheme was surrounded by controversy. A review of evidence about take-up in Britain of one parent benefit family income supplement and supplementary benefit is given.

Part III deals with reforming social security and income taxation in the United Kingdom. The chapters in this part are more relevant as methods of analysis rather than the changes occurring in different schemes in the United Kingdom. It is based on the different schemes in UK. Many of the approaches suggested are based on the TAXMOD developed by the author.

Chapter 13 deals with state pensions, taxation and retirement income from 1981 to 2031. It tries to explore the correct arithmetic and evaluation of state pensions for the retired under different policy choices. The policy choices are state pension, supplementary benefit, retirement age and state benefits and income tax treatment of the elderly and tax credits. The analysis first concerns with the impact of public expenditure and second on the effectiveness of income in ensuring minimum standards of income and the extent of redistribution between generations. It gives a framework of six possible policy variations.

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Chapter 14 deals with social security, taxation and the working population for 10 years from 1983. He deals with a range of policy options including 'incrementalist' reform to radical reforms. However, by 1988 two schemes were replaced, viz., income support replaced supplementary benefit and family credit replaced family income supplement. However, the chapter does not take into account these changes. It gives various alternatives in changing income tax structure, child benefit, tax treatment of husband and wife and integration of National Insurance Contribution and income tax. The author concludes that the treatment of husband and wife for tax and benefits is influenced by the notion of right to minimum financial independence.

Chapter 15 deals with analysis of personal taxation and social security. The author suggests that an appropriate assessment can be done on the basis of Family Expenditure Survey. The behavioural aspect of the consequences of welfare schemes needs to be evaluated. This can be done with micro computer programmes.

Chapter 16 deals with costs of social dividend and tax credit schemes. The radical suggestion, of basic income schemes reform are examined in this chapter. The conclusion is that the necessary tax rate is probably higher than the 43-4% suggested. A detail of this is taken up in Chapter 17. The basic income replaced some of the existing benefits. It results in less extensive redistribution.

Chapter 18 gives the details about tax benefit model for the UK. It gives the stages, type of different information required and various options available in the model.

The book under review has dealt exhaustively with poverty measurement and the schemes as applied in the United Kingdom. The value of this book would have increased if there was a brief review of optional schemes, such as Swedish scheme of social security from "*cradle to coffin*" and the other extreme scheme of socialistic pattern of India where there is a dominance of poverty concentration. This may highlight the varying nature of state intervention in these contexts. This treatment would have given an appropriate perspective for the moderate analysis of the schemes adopted in the United Kingdom.

The author has cursorily dispensed the public policy choice of privatising social security scheme in the UK. During 1980s Mrs. Margaret Thatcher was identified as a privatisation Prime Minister of United Kingdom. It may be interesting to note that Chile introduced the social security programme in 1924 operating similar to one in western hemisphere. It was the first country in 1980 which introduced a radical reform in the social security system. They gave a private alternative. This scheme has shown the benefit of producing social security with the state as the guarantor. So the successful model schemes of either the United Kingdom or of Chile may be alternatives for other developing nations for adoption.

Atkinson has been very successful in his limited objective of analysing social security scheme as adopted in the United Kingdom. The various

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differentiations in the data required for either identifying the beneficiaries of to evaluate the effectiveness of the scheme are given. He has suggested a new model TAXMOD which would be beneficial to analyse the alternative schemes and its impact in the context of the UK. The author recognises that similar models are also developed in France, Italy, West Germany and other countries.

This book is recommended for all those who are directly concerned with removal of poverty in their socio-economic systems to know the effectiveness of various schemes and the prerequisites of data.

WORLD SOCIETY STUDIES

By VOLKER BORNSCHIER, PETER LENGYEL (ed.), Campus Verlag, Frankfurt/New York, 1990

Reviewed by S. SHIVA RAMU, Professor, Indian Institute of Mgt., Bangalore

The World Society Foundation, Jurich, supports some social scientific research on world society. This foundation was established in 1982 by Peter Heintz. The Foundation "respects values of scientific nature, of comprehensibility and of pluralism". Out of these sponsored researches, they have designed a series of publications to communicate the research findings. This volume is the first of the series, which concentrates on Latin American region in the global society perspective.

The notions of World Society have three meta-concepts and approaches such as biosphere, technosphere and sociosphere. Out of these three concepts, the sociosphere is 'the most immaterial, the most elusive and the most ill-defined concept'. The present volume focuses "almost entirely on the sociosphere". There are three ideal typical processes in the social systems such as cultural dimension, political dimension and economic dimension. All these dimensions have historical roots. Many scholarly contributions have tried to pursue the evolutionary lines of classification depending on the emphasis given: social history approaches, world economy approaches, world political approaches and cultural and awareness approaches.

The present volume is divided into three sections. The first section deals with different approaches. Nollert gives the summary of various empirical results of the meaning of inequality in social theory. Most of the studies have dealt with income, inequality, occupational mobility at the level of nation-states, interstates and international inequality and mobility in the interstate systems. However, most of the studies have not been able to find conclusive solutions of income inequalities at the country level due to methodological deficiencies. There are contrary hypotheses on "inverted U-shaped development inequality linkages during the process of industrialisation everywhere". Though the western societies have created a social security

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system where the redistribution of goods in favour of disadvantaged citizens is taken care of, developing countries persist in the inequality. Some of the characteristics of theoretical work on inequality in the world system are political perspective, modernisation theory, the structural political perspective and one system approaches. The author suggests that there are grounds to associate ethical perspective besides antiegalitarian conservatism, radical egalitarianism and meritocratic liberalism for reduction of poverty and narrowing social inequalities.

On the other hand, Munoz takes the inequalities existing in the world system through economic and political approaches. He briefly gives the transition of transformation in the world order due to changes in technology and the tendency towards 'uncoupling' of industrial economy from primary producing economy and employment from production. With the changing situation, there are three major international themes in respect of Latin American perspective, viz., relations of the United States and Central American crisis, debt burden on the world economy and the process of redemocratization.

Similarly, Sanchez describes the scenario of north-south conflicts. He develops three scenarios, first keeping the northern interest as the major one, second trying to harmonise the interest of both north and south, and the third keepingthe southern interest foremost. With these scenarios, different approaches are depicted wherein the northern are trying to approach the global economic management through sectoral negotiations under the control of experts and in specialised forms, while there is limited scope for north-south joint management system. In the southern perspective, there has been a growth of combining their interests since the 1955 Bandung Conference. To avoid a global political anarchy, the author views that the transition from East-West conflict towards the main value of North-South agreement may be the best alternative for the future global economic management.

The second part has five essays dealing with the Latin American perspective. Anderson deals with the nature and meaning of the phase of Hispanic American Liberation, the struggle and transformation of Spanish Empire in the Americas. He says that the continental conflict in Latin America, with its wars of national liberation, may be the first creation of the 'third world' concept. The scenario of American Independence developed three strands of relationship: firstly, Latin America was the "immediate heir of the global impact of North-American and French Revolutions." Secondly, the capitalist economy was more advanced than the Spanish social formation. These resulted in overt conflicts between creoles and peninsulars in the colony. Thirdly, there was an immediate impact of French Revolution which triggered Spanish colonial emancipation.

Sanchez described the socio-political realites of Latin America in the global context. On the basis of geo-spatial classification, he classfies Latin America into five sub-regions, viz., Mexico and the Caribbean, Central America, Andean

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Sub-Region, the Atlantic and the New Caribbean. Internally the regions are separated and within countries there exist privileged centres and isolated zones which in turn created internal colonialism. There was less social integration due to ethnic and racial diversity which almost created a social stratification called "pigmentocracy". Besides, the political literature has identified three types of states in the region: oligarchical, populist and bureaucratic-authoritarian.

Vayrynen describes the geopolities and the world economy, a case history of Brazil. This was taken to illustrate the "cyclical expansion of world capitalism into peripheral areas". There are two aspects of this expansion; one is commodity cycle and long and short term fluctuations of economic growth. In Brazil, the commodity cycle and the emphasis of economic activity has shifted from one export commodity to another, depending on the changing demands of the colonial core. In the 17th century Brazil had a coastal monoculture (sugar production, slave labour) and the pastoral society. In the north-east, it was built on cattle and leather. Then it was followed by the gold cycle with its boom and later cotton emerged temporarily as an export commodity. Subsequently, both sugar and cotton declined in the 19th century. Then there was a development of export of coffee and in between there was a brief rubber boom in the 1880s and 1910s. This was followed by industrialisation. Geopolitical doctrines have dual characteristics. Nationalism and geopolitical thinking are responses to uneven development. The author feels that there is a chance for Brazil to continue to develop from semi-periphery to the core of the international economic system.

Lengyel gives the comparative pattern of Australia and South America, the pattern of semi-peripherality. Latin America was based on 'pigmentocracy' while Australia was based on 'squattocracy'. This was dominated by the settlers who were more egalitarian in concept and based on export of wool.

South America is caught with the turmoils of modernisation with growth poles and backward sectors, while Australia has a uniform modern society without a traditional sector.

Oliva deals with the deteriorating nutritional situation in Latin America and Africa. The capitalistic logic gives three dimensions of vertical differentiation. The first is national differences in societal accumulation. The second difference is in social productivity and labour. The third difference is in the efficiency of converting the labour productivity into accumulation. All these can be described as a societal accumulation crisis. He finds that Africa is in the phase of structural heterogeneity via urban growth, similar to the development pattern of Latin America.

Section Three has got two essays on special subjects. One is on peace and another is on public debt. Russett takes partial stock of peace research and he tries to compare solving war with cancer problem. There is difficulty in solving either problem and he dismisses a 'single cause theory' in analysing causes of war. He feels there is a combination of several factors like democratic

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government, economic decline or vice versa that will produce greater dispute involvement. He also differentiates between positive peace and 'non-war 'concepts. In positive peace, there is an element of reciprocity, equality and joint problem-solving capabilities, while non-war is negative peace depending on different conditions such as one-sided dominance or mutual irrelevance or mutual deterrence.

The final essay (Suter et al.) deals with external public debt of the periphery. This is a good historical analysis of the sequence of booms and crises which are recurrent. He compares it to Kondratieff growth cycles of 60 years. He suggests there are distinct features of peripheral indebtedness. First, there is a pattern of 50–60 years of major debt crisis occurring. Secondly, this can be explained with reference to specific economic and political structure within the indebted countries. Recently, there is a development of multilateral rescheduling within Creditors' Club. The article specifically takes the perspective of three countries, Peru, Argentina and Turkey, from 1820 to 1985. It describes external debt and the various political regimes in these countries. Mostly the "state class-based and populist regimes rely heavily on foreign debts, which are largely used unproductively for redistributive or consumptive purposes". The authors hope that "in the long run, increasing cooperation and enhanced institutionalization may modify the mechanisms of Kondratieff cycles".

These essays provide enough material for those interested in the analysis and historical background of the dynamics of current events and transnational processes. This book is highly recommended both to academic researchers dealing in global society aspects and policy-makers who are involved in international negotiations. If one reads this volume, one gets an impulsive urge to search for further volumes in this series.

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LARGE AND SMALL MODELS : THEIR SUITABILITY FOR NORTH-SOUTH ISSUES

Graciela Chichilnisky
Columbia University

Global modeling has evolved remarkably in the last two decades. Such evolution led global modeling to perform today's role as an experimental laboratory for the social sciences, and particularly for applications to policy planning. Two of the most interesting applications to policy are to resource economics and to economic models of North-South Relations, *i.e.*, the relationships between industrial and developing countries. Examples of North-South Policy issues instigated by global modeling are developed in the third section. This is in the context of a United Nations model of technology and North-South relations which evolved from the Bariloche global model. Further applications of global modeling are outlined in the final section.

1. Introduction

Global modeling emerged twenty years ago as an effort to address the world's long-term problems (Meadows *et al.*, 1973) and to predict important trends and crisis points. The field has evolved methodologically to become an experimental laboratory for the social sciences. This evolution will be exemplified by studying that of the Bariloche model, one of the first global models, and analysis of the full development of its implications for trade policies and North-South relations.

The initial global models were very dependent on their particular assumptions and on the initial data which was fed into them: this made them of limited reliability and thus of limited usefulness for policy applications. Their robustness and their applicability required further analysis. One way this was accomplished was by considering simplified and smaller versions of the model, and by performing qualitative analyses of the results and of the model structure.

The smaller models have the advantages derived from the fact that they can be subject to qualitative theoretical analyses of policies. The global model itself remains as a laboratory where numerical experiments are performed and potential results suggested. This process became the source of many important policy insights, which appeared in the context of a United Nations Model for Technology and North-South Relations.

2. The Last two Decades

Global modeling has evolved remarkable during the last two decades. At the beginning it was an audacious attempt to use computers to address very ambitious global and long-term issues. It was believed that

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computers could provide magic new solutions to new problems, particularly to large scale problems which required the analysis of large amounts of data and the study of complex interactions. Global modeling certainly focuses on large issues : geographically, as it pertains to the whole world; in time span, as it studies long-term problems; and intellectually, as it encompasses a multitude of disciplines.

World resources, pollution, population growth, and hunger were originally the main issues. Global modeling attached them head-on in a way which had never been attempted before. It is possible that a certain amount of naiveté was required before such a bold step could be taken. Ten years later, as the dust created by the first three major models (Meadows *et al.*, 1973; Leontieff *et al.*, 1976; Herrera *et al.*, 1976) settled, it became clear that computers are not omnipotent. Disenchantment with the ability of computers to solve humanity's largest and most difficult problems set in, and led to the attempt to incorporate more traditional scientific tools into global modeling. Economics was introduced to study the world's resources and the world's basic needs (Chichilnisky, 1977); sociology and political science to study world scenarios (Cole and Miles, 1984; Cole *et al.*, 1973; Freeman and Johada, 1978) sociology and political science to study aspects of resources and pollution (Heal, 1973).

Global modeling became more respectable as it integrated with the established disciplines. Yet it always brought to the table as a unique feature of bold insistence that the world as a whole mattered and that it could be studied as a scientific object, albeit by less conventional means. It also continued providing a link between computer technology and the social sciences, an outlet by which concerned hard scientists could devote their energies to problems that mattered to them, without leaving these to the more literary approaches of the humanities.

Through this process, global modeling evolved into its present role, an experimental laboratory for the social sciences, more of a source of challenging issues and problems than of computer systems to resolve them.

3. Structural Stability in Global Models and in the Social Sciences

One of the problems global modeling has faced from the outset is the extreme sensitivity of the results to the mathematical assumptions of the models and the model's initial data. Structural stability refers to the robustness of the results to small errors or omissions in the initial data (including both parameter values and functional specifications). Without it, very small variations on the data can lead to drastically different results, and therefore the results are not "robust" or reliable.

Consider, for example, the hypothesis that resources are fixed, while population is exponentially growing. For that matter, consider a linear increase in resources, with an exponential growth in population. Simple

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arithmetic shows that a catastrophe will occur: the exponentially growing population will run out of resources. This will always occur, unless resources grow at least exponentially. It is clear that the assumptions made on the rates of growth of the different variables determine to a great extent the results. This means that the results are extremely sensitive to the assumptions, and in particular to the mathematical assumptions, which are usually less obvious to the reader than other types of assumptions. In the above example, we do not need a computer to predict a catastrophe. We do not need to analyze large amounts of data either. Furthermore, and this is the point about structural stability, the specific data for the catastrophe depends strongly on the mathematical assumptions about the different rates of growth of the different variables, which is initial data of the model. We are really dealing with issues of sensitivity analysis: this is the study of how the results depend on the assumptions and the initial data.

A model is "structurally stable" when its qualitative results are independent of small changes in the assumptions and the initial data. Given the paucity of data in the areas studied by global models, as well as the uncertainty underlying the measurement of data, structural stability is clearly an important feature: it guarantees that small mistakes or omissions in the assumptions and initial data do not radically alter the results. We can, therefore, rely on the results despite the fact that the data are imperfect, and that our assumptions may be a bit off.

The desirability of structural stability extends to most areas in the social sciences. The reasons are the same : the results are very dependent on the assumptions, and lack of proper data, or small errors in the observations, are more the rule than the exception in the social sciences. This is an important methodological difference between the social and physical sciences.

This issue of structural stability lies behind many of the criticisms made of the results of the "Limits to Growth" exercise. It was the thrust behind the development of the Bariloche model, which set out in 1970 to answer the worst predictions of the "Limits to Growth" for the developing countries' growth so as not to exhaust the world's resources, or alternatively their position in the world economy without threatening the rest of the countries.

These results were seen as a threat to the efforts of developing countries to improve their position in the world, in an era where the "New International Economic Order" was introduced proposing advances for the developing countries by means of economic growth. The Bariloche model saw the "The Limits to Growth" results as a simple consequence of certain assumptions which were considered as unacceptable, between population growth in the developing countries, per capita consumption of resources in the developing countries and in the world, and certain

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exponential assumptions about population growth. More importantly, Bariloche saw the "Limits to Growth" exercise as assuming that human beings do not adjust to their environment, since the trends of the different variables (*e.g.*, consumption patterns, resource availability) and their relationships, are assumed to proceed blindly without any corrections even as the catastrophe nears. Mathematically, there are no functional adjustments between the different trends.

On this basis, the Bariloche model set out to investigate alternative assumptions and the results which would ensue, again using a computer model of the world economy, but this time assuming certain rational features or adjustments of the economic agents : the maximization of consumption of "basic needs," a term which was introduced by Bariloche for the first time in the literature and which had a widespread and illustrious following throughout the world for many years. As the author of the economic model within Bariloche, I still remember the incredulity encountered in trying to introduce such a novel concept within an economic model of a traditional type.

Of course, as Bariloche made different assumption, it obtained different results; in particular, it found that the growth of the developing countries was indeed possible within existing resources and reasonable assumptions provided economic agents were rational, and that developing countries indeed did not threaten the world economy in their attempts to grow: no surprise here. However, at the policy level, both "Limits to Growth" and Bariloche encountered the same difficulty: How much structural stability did those models have? In order to use the results for policy analysis we needed to know how much the results depended on the numerical and functional assumptions and how much was, instead, an intrinsic property of the structure of the models. Rephrasing this: Was Bariloche structurally stable? Was "Limits to Growth" structurally stable?

4. From Bariloche to the United Nations Model: Technology and North-South Relations

A large global model is a time-consuming exercise, as any author will attest, and Bariloche was no exception to this rule. There was little time to study methodological issues which were outside its scope, such as the question of structural stability. Yet this question remained and its importance became to me clearer as time passed. This is partly because, disguished as a methodological question, this was a major issue in deciding the desirability of alternative economic development policies.

In 1978 the UNITAR Project on the Future, led by de Seynes, gave me the opportunity to co-direct a United Nations project which we called "Technology and North-South Relations". This project was to produce a global model that would revise Bariloche and focus on North-South issues of importance for the United Nations' development strategies. Technology

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was certainly one such issue; North-South relations was another. Here I was given a unique opportunity to improve upon the shortcomings of the Bariloche model which still haunted me. Here I could add a market structure, and prices as a most important class of variables in the economic model (Bariloche did not contemplate markets). Here I could really look at the issue of structural stability and dig deeply into the structure of the world model which we produced, in cooperation with my team at Harvard and Columbia Universities, and with another team led by S. Cole at Sussex University (Chichlinsky, 1980; 1981; 1983; 1984a, b; 1986).

As already mentioned the methodological issue was really a cover for some of the most interesting policy issues which I have encountered in many years. Judging by the interest and the published comment and criticism generated by the work which ensued upon publications about the United Nations model in the *Journal of Development Economics* (1983, 1984), others were not immune either to the attractions of these issues. These policy issues include some of the major concerns in international trade policy: the desirability of export-led growth and of specialization into "relative advantages", the international market's role as an "engine for growth", and the role of aid in sustaining development.

From now onwards I will refrain from discussing the methodological issue except in the context of these major policy issues. It will become more fruitful in the light of this volume to do so. But I must alter the reader that the methodological issue is not exhausted by these policy examples. It is a fundamental issue within the social sciences and it deserves to be treated as such, in its proper context.

5. Global Models and North-South Relations

The first task of our United Nations project "Technology and North-South Relations" was to produce a model which would deal best with the major policy issue of developing countries. The starting point was the question of satisfaction of basic needs, an issue central to the Bariloche model. Producing the United Nations model was a demanding task because most existing economic models were manufactured with the industrial countries in mind, and therefore were not adequate for the study of developing countries. For example, a country's demand was typically aggregated into one economic statistic, thus preventing the study of certain fundamental issues regarding the difference in demand by different groups, *i.e.*, the distribution of income.

We decided that one of the most interesting and difficult issues which had to be addressed was how different policies affected different income groups, and for this we disaggregated demand by income groups. This leads to the problem of how to divide the population into different income groups in a meaningful way, namely in a way which would actually be useful in understanding the impact of alternative policies.

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To achieve this, the separation of goods into different types was required, particularly types of goods which were consumed in different proportions by the different income groups. Similarly, market prices became quite important, because often (voluntary) policies are followed by (involuntary) price changes. For example, tariffs lead to changes in market's relative prices. Price changes have a welfare effect of their own, affecting the income groups which consume most intensively the goods whose prices have changed. Such welfare effects could, therefore, work in the opposite direction from that which was intended.

With these problems in mind we created a global model with several income groups, and where goods were disaggregated according to their consumption by the different groups. Prices for the different goods were determined by the market forces. For example, basic goods were introduced, defined as a bundle of goods which were consumed most intensively by the lowest income group. Each region was modeled as a market economy which produced and consumed several groups of goods, and which had several groups of consumers each consuming each group of goods in different proportions.

Having modelled accordingly, we set out to model the international economy, and then proceeded to compute international market equilibria. All goods were internationally traded, and the international market, save for tariffs where applicable, was assumed to be competitive. An algorithm was developed to compute the solution, which for simplicity was one of postulating a positive adjustment between goods exported and their prices until a market clearing equilibrium was reached, under the assumption that if more goods were exported, international demand should have increased, and this would naturally lead to higher prices. The purpose was to approximate an "export-led" policy, namely a policy in which the developing countries faced a larger demand for their products, and exported more.

At this point our experimental laboratory, the numerical global model, started producing surprises. More exports were associated with lower prices, not with higher prices, even if the increase in exports derived from an increase in the demand from the rest of the world. After considering several possibilities, including, of course, numerical errors, we had to admit that in the world represented by this model a policy resulting in the North (the industrial countries) to import more from the South (the developing countries) lowered the prices for the South's exports. Since these exports are labor intensive, this in turn led to lower wages, to lower levels of output, and to lower levels of employment in the South as well. In the logic of the model increasing exports reduced the welfare in the South.

The surprises did not end here. The numerical results also showed that the North was consuming more of all good in all income levels due

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to the decreased prices of the imports. The policy which led to increasing imports in the North's was beneficial for the North but certainly not for the South. It is important to note that all took place in stable markets; if the world's demand for a product increased, then prices increased correspondingly. The reason was that as the North's demand increased, the South's did not, thus prices did not increase with an enlarged market for exports. Even with stability, exporting more was no better for the South: it was even worse. So much for export led policies.

Having reached such a point, the only alternative open to the scientist is to try to understand the reasons producing these results from the numerical experiments. The results did not appear to tally with existing theory. In fact, they were consistent with existing theory, but brought to our attention issues which are seldom discussed in economic theory, and which were not understood until then.

These issues can be described as follows: if a country is exporting a labor-intensive commodity mostly consumed by wage earners, and if the country's demand response to prices is strong, while supply responses are weak, then any increase in prices of basic goods increases domestic demand more then domestic supply, thus lowering exports. Under these conditions, the only way exports can increase is by lowering domestic demand, which in turn is achieved by lowering wage income, and reducing employment and production. The increase in exports would be accompanied by an increase in imports by the rest of the world, but this does not alter the results. A dismal outcome, but a very real one.

This outcome was understood only after simplifying the global model to a two-country two-good model similar to the classical Heckscher-Ohlin model but having two differing features: 1. The supply of factors (capital and labor) is not fixed, which varies strongly in the South depending on prices. 2. technologies are different in the two regions. In the South the modern and the traditional sectors differ considerably while the North exhibits a rather distributional homogeneous technology across its entire economy. These two features were denoted: abundant labor supply and dual technologies, respectively. The North was construed to be homogeneous, and its factors to be relatively supply inelastic.

In the context of a simplified model, these results were proven by mathematical theorems, in which the above conditions were formalized. The consequences of export-led policies already discussed were formally proven for markets with all stability properties.

These results for export-led policies in the South with abundant labor and dual technologies, led to a number of publications (Chichilnisky, 1981; 1984a; 1986). These publications led in turn to very considerable comment and criticism in the *Journal of Development Economics* (1983; 1984) because they were considered very surprising. In addition, they were not welcome by advocates of export-led growth. The issue was complicated

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further because a certain mathematical dexterity was necessary to prove the above results, which went beyond the average level in conventional trade theory, effectively introducing new theoretical tools in the field.

As the theory became well understood, it became possible to determine the range of parameters under which such results would occur, and those under which the opposite would happen. Export-led policies then could only be advised in the latter case but not in the former. The range of parameters determining the outcome included technology parameters such as the input-output coefficients in the production functions of the different goods. Thus, technological considerations could be used to recommend export-led policies, or to the contrary to avoid them. Reciprocally, if export-led growth was a goal, certain technologies were needed to guarantee positive results. Technology and basic needs were thus tied up in export-led policies, by means of the experiments with a global model.

A second experiment was conducted related to another major issue in North-South relations: foreign aid. A similar sequence of events, which by now the reader can reconstruct without narrative, led to a theorem proving that in stable world economies with at least three countries, a donor country can make itself better off, and the receiving country worse off after the transfer aid from the former to the latter. This occurs as a result of the impact the transfer has on equilibrium prices, which reverts the primary positive effect of the transfer into a negative one called the *transfer paradox*. The same results take place after one country disposes of some of the goods it exports (the *destroy paradox*). The latter example was reminiscent of several incidents involving the destruction of coffee and other basic export crops in developing countries.

The first issue, namely the transfer paradox, was a classical problem in trade theory going back to John Stuart Mill, but with an important twist. In the 1950's Paul Samuelson had contended that this paradox could only happen in unstable markets, and therefore that it was of little practical interest. The stable results of Chichilnisky (Chichilnisky, 1980; 1983, 1984c) took several other authors by surprise, leading to a large number of publications intending to clarify and explain the results (*Journal of Development Economics* 1983). The United Nations global model, our experimental laboratory, was responsible for finding these results, by opening our experimental eyes to possibilities which were not known before.

The next step following the theoretical analysis is the actual fitting of the model to data, and the development policy recommendations. This was achieved in a number of publications (Chichilnisky, 1981; 1984a, b; 1986; Chichilnisky and Cole, 1978) dealing with specific countries as well as with the global economy (Chichilnisky, 1984d, e).

The theoretical analysis of reduced versions of the global models, which led to the understanding of these results, disclosed also the degree of

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stability of these conclusions. In each case, a range of parameters was identified within which export policies would be favorable, or not, and in the latter case, where aid would have a favorable effect or not. Structural stability of the results was established. This means that within a wide range of parameters we could be assured that the qualitative predictions would be preserved. Despite small errors of observations, we could still apply the results of policy analysis with a certain measure of confidence.

6. Export-Led Policies and Aid: two Major Issues of North-South Relations

These two major policy issues, the impact of aid and of export-led policies, served to illustrate the applications that global modeling has had to North-South relations. The experiment disclosed rather unexpected results which had not been known before. The analysis of smaller versions of the model led to new theories and to new insights into policy, all based on the experimental laboratory provided by the global model.

This is in a way the most successful type of application of global modeling in the social sciences. It very likely points to a strategy which represents a substitute for experimental work can be performed along with theory, thus leading to a desirable balance of both for the study of global policy issues.

7. Summary and Conclusions

The last twenty years have witnessed major changes in global modeling. It evolved from a rather diffuse and all-encompassing computer technique to addressing major global issues and detecting points of crisis and possible solution. By now global models have gradually grown into a substitute for experimental laboratories in the global agenda.

We have discussed the evolution of global modeling using as an example that of the Bariloche model, one of the first global models, into the United Nations model "Technology and North-South Relations." The former was used to investigate humanity's ability to satisfy basic needs; the latter, to focus on and evaluate more specific trade policies and other major issue of North-South relations, such as aid. In the process of developing the model a methodological question, the structural stability of the results, led to a new modeling methodology. Global models were used for conducting policy experiments and to test numerical responses; smaller versions of the model were used to investigate in depth the structure of the results, and their reliability for policy. The global model itself remains as an experimental laboratory for the social sciences.

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HINDU-MUSLIM DIFFERENTIALS IN APPROVAL OF FAMILY PLANNING BY SOCIO-ECONOMIC STATUS

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Lower approval rate of family planning programme by the Muslims, the largest minority community of India as compared to that by the Hindus, the majority community of the country has been consistently revealed by family planning surveys[1]. This differential underlies lower acceptance of family planning programme by the former as compared to that by the latter. It has usually been attributed to lower socio-economic status of the Muslim community. In order to examine this issue, it is necessary that the Hindu-Muslim differentials in family planning approval rate of the two communities of the same area are investigated after controlling for the individual level socio-demographic and economic variables. Further, in order to know the reasons for lower acceptance of family planning programme by the Muslims as compared to that by the Hindus, reasons have also to be analysed in the same way for developing appropriate policy measures. The present paper presents such an exercise.

Data and Method

The study is based on the analysis of data collected from 1256 reproductive females—1152 Hindus and 104 Muslims in course of another field investigation in Sikandarpur Karan PHC of Unnao District in central Uttar Pradesh during the period November 1984 to February 1985. The sample consisted of mothers, who delivered a child during a particular year (1982–83). It need be noted that younger women, being more fertile, are represented in the sample more than older women.

For controlling the influence of socio-demographic and economic status, the responses have been cross-classified by age of female, number of surviving children, education and per capita family income, type of housing and family status. To know the reliability of results, the difference in proportions have been tested by 'Z' test. The asterisks attached to the values indicate the level of significance of the difference in proportion: *P $\angle$0.5; **P $\angle$0.1; *** $\angle$0.01, implying the level of confidence of 95%,

[1]The recent-most all-India survey revealing this finding is the following:
M. E. Khan and C. V. S. Prasad, *Family Planning Practices in India—Second All India Survey*, Operations Research Group, Dr. Vikram Sarabhai Marg, Broda, 1983, pp. 216.

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99% and 99.9% respectively. As some of the respondents could not respond on the question of reasons for disapproval, they have been eliminated from the total respondents for the analysis of reasons.

ANALYSIS

I. Approval of Family Planning by Religion

Before considering the family planning approval status of the Muslims and the Hindus after controlling for the socio-economic characteristics of the study cases, the following table presents the distribution of the total cases of the two communities by their approval status.

TABLE 1

APPROVAL OF FAMILY PLANNING BY RELIGION

Religion	Responding cases	% approving	Reasons for disapproval (% distribution)			
			Against religion	Injurious to health	Others	Responding cases
Hindus	1152	79.1	11.6	79.6	8.8	181
Muslims	104	23.1	98.6	0.0	1.4	73

As is obvious from the table, less than one-fourth of the Muslim couples approve use of family planning as compared to about four-fifths of the Hindus. These differences are highly significant statistically ($Z = 12.53$***).

As regards reasons for disapproval given by the responding disapproving cases, religious reason has been mentioned by almost all the Muslim respondents while only about one-eighth of the Hindu respondents gave this reason. Thus, religious ground is the main ground for disapproval of family planning adoption by the Muslims. The main reason among the Hindus is its injurious effect on health, a serious misconception which can be removed by proper educational programmes.

II. Socio-Demographic Differentials in Family Planning Approval

Age of Female

Age of female is an important factor influencing approval of family planning. Therefore, Hindu-Muslim differences in the approval of family planning have been analysed below in three age groups of female:

The analysis reveals that the approval of family planning declines with

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TABLE 2

APPROVAL OF FAMILY PLANNING BY AGE OF FEMALE AND RELIGION

Female years	Respondents	% approving	Reasons for Disapproval (% distribution)			Total respondents on reasons
			Against religion	Injurious to health	Others	
Below age 25						
Hindu	408	87.3	8.8	73.6	20.6	34
Muslim	38	21.9	96.0	0.0	4.0	25
Age 25–34						
Hindu	546	78.4	13.2	79.1	7.7	91
Muslim	42	21.4	100.0	0.0	0.0	31
Age 35 and above						
Hindu	190	63.2	10.7	85.7	3.6	56
Muslim	24	16.7	100.0	0.0	0.0	17

increase in age of female. However, in all the three age groups considered for the study, approval rate of family planning is significantly less among the Muslims than the Hindus. In age group below 25, the proportion of the Muslims approving family planning is only one-third of the corresponding Hindu respondents (Z = 9.00***). In age group 25–34, approval rate among the Muslims is only a little above one-fourth of the corresponding Hindu rate (Z = 8.14***) and in age group 35 and above, the approval rate of family planning among the Muslims is only about one-fourth of the corresponding Hindu rate (Z = 4.34***).

As regards reasons given for disapproval of family planning, all the Muslim respondents in age group 25–34 and above and 96% in age group below 25 have given religious ground for disapproval, while the corresponding proportion among the Hindus has been one-eighth or less. The main reason among the Hindus is that use of family planning methods is 'injurious' to health while no Muslim has given this reason. It is interesting to observe that among the Hindus, the percentage of cases giving this reason increases consistently with increase in age implying that this misconception is less among the younger study couples.

Number of Surviving Children

In view of certain family size ideal, the approval of family planning to a large extent depends on the number of surviving children that a couple

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has. Therefore, the responses on approval rate have been analysed by the number of surviving children in table 3.

TABLE 3

APPROVAL OF FAMILY PLANNING BY RELIGION AND SURVIVING CHILDREN

Surviving children	Responding cases	% approving	Reasons for Disapproval (% distribution)			
			Against religion	Injurious to health	Others	Total respondents on reasons
Three or less						
Hindu	700	85.I	9.1	78.8	12.1	66
Muslim	62	19.4	97.8	0.0	2.2	45
Four or more						
Hindu	450	70.0	13.3	79.7	7.1	113
Muslim	42	28.6	100.0	0.0	0.0	28

In both categories of surviving children, proportion of the Muslim respondents approving use of family planning methods is markedly less among the Muslims than the Hindus. In surviving children category of 5 or less, the proportion of the Muslim respondents approving the use of family planning method is less than one-fourth of the corresponding Hindu respondents ($z = 12.45$***) and in the surviving children category of 4 or more the same proportion is only two-fifths ($z = 5.37$***).

As regards the reasons given for disapproval of family planning, almost all (97.8%) of the Muslim respondents in surviving children category of 3 or less gave religious ground for disapproval as against less than one-tenth of the corresponding Hindu respondents. In surviving children category of 4 or more, while all the Muslim respondents gave religious reason for disapproval, the corresponing Hindu respondents were only one-eight. The main reason among the Hindus was its injurious effect on health in both the categories due to their misconceptions.

Education of Male

Male's education is expected to exercise an important influence on approval of family planning. Hindu-Muslim differences in family planning approval have been given below by literacy status of male :

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TABLE 4

APPROVAL OF FAMILY PLANNING BY RELIGION AND MALE'S EDUCATION

Male's Literacy Status/ Religion	Responding cases	% approving	Reasons for Disapproval (% distribution)			
			Against religion	Injurious to health	Others	Total respondents on reasons
Illiterate						
Hindu	422	70.6	7.9	82.0	10.1	89
Muslim	67	20.9	98.2	0.0	1.8	55
Literate						
Hindu	726	84.0	15.2	77.2	7.6	92
Muslim	37	27.0	100.0	0.0	0.0	25

Approval rate of family planning is relatively more in literate category than in illiterate category in both the communities. However, in both the categories, the proportion of the Muslim respondents approving the use of family planning is significantly less than of the corresponding Hindu respondents. In illiterate category, the proportion among the Muslims is less than three-tenths of that among the Hindus ($z=8.33$***) and in literate category the proportion of the Muslim respondents is less than one-third of the corresponding Hindu respondents ($z = 8.14$***).

As regards the reason for disapproval, in illiterate category nearly all the Muslim respondents (98.2%) as against only one-twelfth among the Hindus (7.9%) and in literate category all the Muslim respondents as against one-sixth of the Hindu respondents gave religious ground as a reason for disapproval of family planning. The main reason among the Hindus in both the categories is its injurious effect on health due to misconceptions, which can be removed by appropriate educational programmes. It is interesting to see that among the Hindus, the percentage of couples giving this reason is relatively smaller among literate (77.2%) cases than among illiterate cases (82.0%).

Education of Females

Education of females is expected to have a significant positive influence on approval rates for the use of family planning. The following table presents analysis regarding Hindu-Muslim differences in family planning approval rate in the illiterate and literate category of females:

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TABLE 5

APPROVAL OF FAMILY PLANNING BY RELIGION AND LITERACY STATUS OF FEMALE

Female's Literacy Status/ Religion	Responding cases	% approving	Reasons for Disapproval (% distribution)			
			Against religion	Injurious to health	Others	Total respondents on reasons
Illiterate						
Hindus	873	75.5	9.4	81.8	8.8	159
Muslims	91	18.7	100.0	—	—	68
Literate						
Hindus	275	90.5	27.3	63.6	9.1	22
Muslims	13	53.8	80.0	—	20.1	5

The analysis reveals that approval rate of family planning methods is relatively larger in literate category of female than illiterate category in both the communities. In both educational categories, however, approval rate of family planning is markedly higher among the Hindus than among the Muslims. In illiterate category, less than one-fifth (18.7%) of the Muslim respondents approved use of family planning methods as against three-fourths (75.5%) among the Hindus ($z = 11.2$). In literate category, a little above half (53.8%) of the Muslim respondents as compared to nine-tenths (90.5%) of the Hindu respondents approved the use of family planning methods ($z = 4.11$***). Thus, education of female is seen to have larger influence on family planning approval rate in both the communities than education of male. However, education of female could not remove Hindu-Muslim differences on family planning approval rate, although it reduced these differences.

As regards reason for disapproval, whereas all the non-approving Muslim respondents in illiterate category and four-fifths in literate category consider the use of family planning against religion, the corresponding percentage among the Hindus is 9.4% in illiterate and 27.3% in literate categories. The main reason for disapproval among the Hindus was injurious to health character of family planning acceptance in both the literacy status characteristics, although this reason becomes relatively less important among literate females.

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III. Economic Differentials in Family Planning Approval

Occupation of Male

Male's occupation is expected to influence the approval rate of family planning use by influencing perception about ideal number of children and misconceptions about family planning programme. In the table given below, Hindu-Muslim differences in family planning approval rate have been analysed in different occupational categories of male.

TABLE 6

APPROVAL OF FAMIILY PLANNING BY RELIGION AND OCCUPATION OF MALE

Occupation of Male/ Religion	No. of Respon-dents	% appro-ving	Reasons for Disapproval (% distribution)			
			Against religion	Injurious to health	Others	Respondents on reason
White Collar and Business						
Hindu	168	84.5	16.6	72.2	11.1	18
Muslim	10	50.0	100.0	—	—	5
Farming						
Hindu	476	84.9	9.7	82.2	8.1	62
Muslim	34	23.5	100.0	—	—	25
Manual Labour village artisans						
Hindu	356	69.7	9.0	83.7	7.7	78
Muslim	32	15.6	100.0	—	—	24
Petty Traders and Others						
Hindu	138	76.8	18.2	68.2	13.6	22
Muslim	28	21.4	94.7	—	5.3	19

Among different occupational categories, family planning approval rate is seen to be the highest in white collar workers and farmers and the lowest among manual labour and the village artisans in both the communities. Within the overall approval rate of 23.1% among the Muslims, the rate varied from 50% in white collar and business categories to only 15.6% in manual labour and village artisan categories. However, this approval rate among the Muslims is significantly lower than that among the Hindus in each occupational category. In white collar and business,

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the approval rate among the Muslims is three-fifths of that among the Hindus ($z = 2.79^{**}$). In farming category, the approval rate among the Muslims is only slightly above one-fourth of that among the Hindus ($z = 8.76^{***}$). In petty traders category also, the approval rate among the Muslims is only slightly above one-fourth of that among the Hindus ($z = 5.71^{***}$). In manual labour and village artisans category, the approval rate among the Muslims is only a little above one-fifth of that among the Hindus ($z = 6.16^{***}$). Thus Hindu-Muslim differences in approval rate are statistically significant in all the categories.

As regards the reasons for disapproval among the Muslims, religious ground was the only ground in three occupational categories and the most important (94.7%) in one category. Among the Hindus, religious ground accounted for from less than one-tenth (9%) to a little above one-sixth (18.2) of the non-approving cases. The main reason among the Hindus for non-approval of family planning in all occupational categories was that it is injurious to health. The percentage of non-approving Hindu cases who gave this ground varied from above two-thirds (68.2%) to above four-fifths (83.3%) of the cases.

Family Income

Income is expected to be positively associated with approval of family planning programme. In view of this, Hindu-Muslim differences in approval of family planning have been analysed in table 7 by total monthly income of the family.

TABLE 7

APPROVAL OF FAMILY PLANNING BY RELIGION AND MONTHLY INCOME

Monthly Income of the family	No. of Respondents	% approving	Reasons for Disapproval (% distribution)			
			Against religion	Injurious to health	Others	Respondents on reasons
Below Rs. 300/-						
Hindu	375	68.3	10.5	80.3	9.2	76
Muslim	41	12.2	100.0	—	—	30
Rs. 300–500						
Hindu	451	79.6	12.3	80.8	6.9	73
Muslim	36	25.0	96.3	—	3.7	27
Rs. 500 and over						
Hindu	385	87.3	25.5	75.0	12.5	32
Muslim	27	37.0	100.0	—	—	76

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The analysis reveals that approval rate of family planning methods increases with increase in family income in both the communities. However, Hindu-Muslim differences in approval rate continue to persist in all the income groups. In the lowest income group of below Rs. 300/-, whereas more than two-thirds of the Hindu respondents approved family planning, only one-eighth of the Muslim respondents did so, Hindu-Muslim difference being significant statistically (z = 6.92***). In the next higher income group of Rs. 300–500, about four-fifths of the Hindu respondents approved family planning, only one-fourth of the Muslims did so (z = 7.20***). In the highest income group of Rs. 500/- and above, approval rate among the Hindus was 87.3%, but the corresponding rate among the Muslims was only 37.0% (z = 6.85***). Thus, even after taking into account family income, the approval rate among the Muslims was found to be significantly lower than among the Hindus.

As regards the reasons for disapproval, almost all the Muslim respondents gave religious ground to be the reason for their disapproval of family planning in all income categories, while one-sixth or less of the Hindus gave this reason. The main reason given by the Hindus for their disapproval in all categories was 'injurious to health' character of family planning acceptance, whose weight marginally declined in the highest income bracket.

Per Capita Family Income

Sometimes per capita income is considered to be a better index of economic level of a family. Hindu-Muslim differences in family planning approval rate have been analysed below in four per capita income brackets:

The analysis reveals that, whereas the approval rate among the Hindus consistently increases with rise in per capita income level, it is not so in case of the Muslim respondents. Further, the approval rate among the Muslims is significantly lower than that among the Hindus in each per capita income bracket. In income bracket below Rs. 40/- per month, the approval rate among the Muslims is one-third of that among the Hindus (z = 3.75***). In the next higher per capita income bracket (Rs. 40–60), Hindu-Muslim differential further increases due to increase in approval rate among the Hindus and its constancy among the Muslims (z = 7.86***). In the next higher income bracket (Rs. 60–80), the approval rate in both the communities increases. However, despite this improvement in rates of the two communities, Hindu-Muslim differential remains highly significant (z = 5.50***). In the highest income group of Rs. 80 and over, the approval rate among the Muslims declines and among the Hindus increases. Consequently, Hindu-Muslim difference in approval rate remained highly significant statistically (z = 7.83***).

As regards the reasons for disapproval, all the Muslim respondents in

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TABLE 8

APPROVAL OF FAMILY PLANNING BY RELIGION AND PER CAPITA FAMILY INCOME

Income of the family	No. of Respondents	% approving	Reasons for Disapproval (% distribution)			
			Against religion	Injurious to health	Others	Respondents on reasons
Below Rs. 40						
Hindu	216	69.0	13.8	86.2	—	58
Muslim	17	23.5	100.0	—	—	10
Rs. 40–60						
Hindu	392	77.6	10.1	79.7	10.1	69
Muslim	47	23.4	100.0	—	—	32
Rs. 60–80						
Hindu	251	80.9	5.6	83.3	11.0	36
Muslim	19	26.3	100.0	—	—	14
Rs. 80 and over						
Hindu	291	86.9	22.2	50.0	27.8	18
Muslim	51	19.1	94.1	5.9	—	17

first three per-capita income brackets and 94.1% in the highest income bracket gave religious ground as a reason for disapproval. Among the Hindus, the weight of religious reason declined upto the third per-capita income bracket and increased in the highest bracket to 22.2%. Conversely, the weight of 'injurious to health' character of the programme was relatively much lower in the highest income bracket among the Hindus.

Housing Situation

The type of the house in which one lives may be an important indicator of his economic status. Therefore, Hindu-Muslim differences in family planning approval rate have been analysed by type of their residential accommodation. In order to have a sizeable number of the Muslim respondents in all the categories, 'pacca' and 'kachcha' categories have been combined.

Surprisingly, the respondents belonging to both the communities living in better status housing (pacca and kachcha) have shown smaller approval rate for family planning than of those living in inferior housing

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status (thatched). It appears that inferior housing situation makes people realise more the need for family limitation.

TABLE 9

APPROVAL OF FAMILY PLANNING BY RELIGION AND HOUSING SITUATION

Housing Situation/ Religion	No. of Respondents	% approving	Reasons for disapproval (% distribution)			
			Against religion	Injurious to health	Others	Respondents on reasons
Pacca and Kachcha						
Hindu	879	77.8	11.0	79.3	9.7	145
Muslim	78	16.7	100.0	—	—	58
Thatched						
Hindu	273	83.2	13.9	80.6	5.6	36
Muslim	26	42.3	93.3	—	6.7	15

In both categories of housing, the approval rate of family planning among the Muslims is relatively much less than among the Hindus. In better housing situation, above three-fourths of the Hindus approved use of family planning as compared to one-sixth of the Muslims ($z=11.18$***). In inferior housing situation, above four-fifths of the Hindu respondents approved use of family planning as compared to little above two-fifths of the Muslims ($z = 4.99$***).

As regards reasons given for non-approval, religious ground was given by all the non-approving Muslim respondents in better housing situation and above nine-tenths of them in inferior housing situation, as compared to nearly one-eighth of the Hindus in both types of housing. The major reason for non-approval among the Hindus is 'injurious to health' character of the programme, which is given by four-fifths of the Hindus in two different housing situations.

Family Status

As determined by the possession of durable household assets, family status is expected to be positively associated with family planning approval rate. Hindu-Muslim differences in approval rate have therefore been analysed by family status of the respondents.

The analysis reveals a consistent improvement in approval rate with rise in family status in both the communities. However, in all the three family status groups, approval rate among the Muslims is significantly

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less than among the Hindus. In the lowest status group, about seven-tenths of the Hindus as compared to less than one-fifth of the Muslims approved family planning (z = 6.38***). In the middle status group, about four-fifths of the Hindus as compared to about one-fourth of the Muslims approved family planning (z = 4.75***). In the highest status group about nine-tenths of the Hindus as compared to a little above one-fourth of the Muslims approved use of family planning (z = 7.00***).

TABLE 10

FAMILY PLANNING APPROVAL RATE BY RELIGION AND FAMILY STATUS

Family Status/ Religion	No. of Respondents	% approving	Reasons for disapproval (% distribution)			
			Against religion	Injurious to health	Others	Respondents on reasons
Lower						
Hindu	334	69.2	8.0	82.7	9.3	75
Muslim	38	18.4	100.0	—	—	27
Middle						
Hindu	581	80.6	12.2	81.1	6.7	90
Muslim	50	24.0	97.2	—	2.8	36
Higher						
Hindu	227	89.9	26.7	53.3	20.0	15
Muslim	15	26.7	100.0	—	—	10

As regards the reasons given for non-approval, whereas almost all the Muslim respondents in the three family status groups gave religious ground, among the Hindus this proportion was very much less but its weight increased with improvement of family status. Although the bulk of the non-approving Hindus gave 'injurious to health' character of the use of family planning devices as reason for disapproval in all family status categories, its weight markedly declined in the highest category.

Limitations of Study

The present investigation suffers from certain limitations' which need be noted. The sample of the study is heavily weighted towards younger ages. In view of this, and the finding that Hindu-Muslim differences in family planning approval rate are somewhat larger at older ages, no attempt should be made to derive overall Hindu-Muslim differential in

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family planning approval from the figures given here. It would mean some understatement of the differential. Further, the sample size for the Muslim community is quite small, which has been further reduced on its cross-classification according to different demographic and socio-economic categories. In view of this limitation, the findings of the study should be taken to be only tentative. For confirming the findings, it is needed that the study is repeated on a larger sample.

Conclusions

In all socio-economic and demographic groups, the Muslim respondents have shown far lower and statistically different approval rate for family planning programme than the corresponding Hindu respondents. This finding contradicts commonly given explanation that lower socio-economic status is responsible for smaller approval rate of family planning programme by the Muslims. However, unlike the earlier finding that improvement in socio-economic status did not exercise a depressing influence on the number of children considered ideal by the Muslims[2], improvment in this status is seen to improve, by and large, acceptability of the programme both among the Hindus and the Muslims. Further, the religious reason constitutes the predominant reason for disapproval of the programme by the Muslims. Improvement of socio-economic status has no impact on the importance of religious reason among the Muslims although among the Hindus it has such an impact. Therefore, the only way to reduce the resistance to acceptance of family planning programme among the Muslims appears to be the involvement of the Muslim religious leaders in propagating the message of family planning. Among the Hindus, misconceptions about the 'injurious to health' character of the programme is the main reason of its disapproval. Therefore, resistance to acceptance of family planning programme among the Hindus can be removed relatively easily by proper family planning education in terms of removing the misgivings about the after-effects of various family planning methods.

[2] "Hindu-Muslim Differentials in Family Size Ideals by Socio-economic Status", published in *The Journal of Family Welfare*, June 1989. There is no contradiction in these two findings because approval to use family planning did not specify the number of children after which adoption of family planning was favoured.

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THE LEWIS MODEL : ITS RELEVANCE FOR INDIA

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I. Introduction

Agriculture-industry interrelationships have been discussed in many development theories on the assumption of surplus labour in agriculture. The Lewis model which is under review here is based precisely on this assumption. His famous publication "Economic development with unlimited supplies of labour" in the Journal of the Manchester School of Economic and Social Studies (May 1954 issue) was further elaborated in January 1958 issue. It was an important contribution to development economics which was then in its infancy. G. Ranis and J. Fei have formalised this relationship, but on a very restricted assumption—the existence of disguised unemployed rural workers who were paid wages above the marginal product of labour. The existence of disguised unemployment has been found difficult to prove empirically. Lewis, however, dispenses with this assumption. He assumes unlimited labour supply at the subsistence level. He does not consider as of fundamental importance the dispute whether marginal productivity is zero or negligible in the traditional sector. The Lewis model is an important contribution to development economics specially when it appeared at the time when development economics was still in its infancy. Today, 32 years after its publication it still occupies a central place in discussion on development economics. Section II gives a brief restatement of the model. Section III deals with the Lewis model and the economic development process in India.[1] Section IV examines the question—Why does India not have higher growth rates of real GNP ?

II. The Lewis Model

The Lewis model is set up in the classical framework. In his famous

[1]The relevance of the Lewis model in interpreting the broad sweep of economic development in India was earlier discussed by V. N. Kothari (1972) and Krishna Bhardwaj (1979). They took the position that India's development experience appears to belive a number of expectations that could have been deduced from a simple Lewis type dual economy approach. In this paper the author does not contradict any of the arguments in the quoted studies. Instead, the issues of savings behaviour, terms of trade and employment are taken up once again with recent-data. Besides, some other aspects of the Lewis model are discussed.

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Manchester School Article (May 1981 issue), he starts with the statement "This essay is written in the classical tradition, making the classical assumptions, and asking the classical questions. The Classics, from Smith to Marx, all assumed, or argued, that an unlimited supply of labour was available at subsistence wages. They then enquired how production grows through time. They found the answer in capital accumulation which they explain in terms of their analyses of their distribution of income. Classical systems thus determined simultaneously income distribution and income growth, with the relative prices as a minor by-product.[2]

Lewis rejected neo-classical economics as dealing with economics without surplus labour and Keynesian economics with economies with unlimited supplies of land and capital. He asserts that "the student of such economies (with surplus labour and limited land and capital) has therefore to work right back to the classical economics before he finds analytical framework into which he can relevantly fit his problems".[3]

The main purpose behind the Lewis model was to explain the process by which a low saving economy gets transformed over time into a high savings economy. According to him, "the central problem in the theory of economic development is to understand the process by which a community which was previously saving and investing 4 to 5% of its national product or less, converts itself into an economy where voluntary saving is running at about 12 to 15% of national income or more."[4]

Lewis distinguishes between two sectors in the economy: 'the capitalistic sector' which uses reproducible capital and 'the subsistence sector' which is not using reproducible capital. The model describes the growth of a less developed country in terms of stages. During an initial phase of development, the unskilled worker's real wage in the capitalistic sector is constant. In a subsequent phase of development, the wage is positively related to marginal productivity of agriculture labour which is variable and positive. The point in time in which a less developed country passes from the first stage of economic development to the second stage is called the turning point. The principal emphasis is on the first stage. It focusses attention on the utilisation of unproductive labour having a low opportunity cost for capital formation purposes. The general strategy is that the capitalistic sector can be expanded through the induced migration of unproductive labour from the traditional sector. Based on the premise that average propensity to save out of profit income is higher than that out of labour incomes. Lewis's growth model suggests that the enlargement of the capitalistic sector will be associated with a rise in the share

[2]Lewis (1981), p. 400.

[3]Ibid., p. 401.

[4]Lewis (1984), p. 155.

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of profits in the national income and an increased rate of capital formation with a capitalist surplus being reinvested with unlimited labour at a constant wage rate.

3. The Lewis Model and Economic Development Process in India

In this section, the following issues have been examined :

(a) The validity of the assumption of surplus labour.
(b) The suitability of the classical framework for analysing the growth of the capitalistic sector in the Indian economy.
(c) The behaviour of savings in India.
(d) The behaviour of real wages and growth of output, employment and exports in India.

(a) In the 1954 publication, Lewis regarded his assumption of surplus labour as 'relevant for the economies of Egypt, India or Jamaica'.[5] Since this assumption has been regarded as specially relevant for India, it is useful to examine its validity in the Indian context. For all practical purposes, Lewis equates the subsistence sector with the peasant agriculture. What is to be taken into account is that labour cannot be employed on most farms throughout the year. The peak employment seasons are those of sowing and harvesting. It is only during the slack seasons that there exists surplus labour. During peak seasons, labour shortages have been experienced particularly in the state of Punjab where high wages were needed to attract labour during the peak seasons. The extent of seasonal unemployment in India can be seen from Section A of the Sixth Plan: Estimates of Unemployment and Employment (Table 1).

TABLE 1
SIXTH PLAN: ESTIMATES OF UNEMPLOYMENT AND EMPLOYMENT
(ESTIMATED UNEMPLOYMENT MARCH 1980)

(Million)

	5 +	15 +	15–59
Usual status (a)	12.0	11.4	11.3
Weekly status (b)	12.2	11.6	11.4
Daily status (c)	20.7	19.8	19.2

(a) *Usual status unemployment* refers to relatively long term unemployment i.e. chronic unemployment and is measured in numbers (of persons). This measure is more appropriate to those in search of regular employment (e.g. educated and skilled persons) who may not accept casual work.

(b) *Weekly status and daily status unemployment* estimates bring out the *seasonal* and part-time unemployment and under employment. These represent the average number of persons employed per week and per day respectively during the survey period.

[5]Lewis (1954) p. 140.

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Category (a) refers to the unemployment mainly in the urban sector. Category (b) brings out the seasonal nature of unemployment which, to a larger extent is a feature of the agricultural sector. Thus, the assumption of surplus labour in the subsistence sector has to be qualified by seasonal surplus labour.

In an analysis carried out by Harry T. Oshima[6] for Asian paddy agriculture, he found that "the labor in monsoon agriculture is surplus only in a seasonal sense i.e. during the slack seasons, but during the peak season, all available labour is needed. The unlimited supply of labor in the classical period in England is not the surplus labor of monsoon paddy agriculture". He comes to the conclusion that "Unlike England in mid 19th century, the predominance of peasant agriculture and thepronounced seasonality in the demand for labor in monsoon paddy agriculture produced results which are not in agreement with the tacit assumptions of dualistic theories[7].

Thus, seasonal surplus labour is a characteristic of not only India but also that of other Asian countries. The Lewis model cannot be utilised to explain the growth process with seasonal labour supply.

(b) In his classical model, Lewis referred to two sectors—the subsistence and the capitalist. Since by his definition the latter uses reproducible capital, the capitalist sector would then include both the public and private sectors in India. According to Lewis[8] this is no problem "since a capitalist is one who hires labor for profit, it makes no difference to the model whether the capitalists are private or public. At first this argument appears plausible but on reflection one is reminded that the model is set in the classical theoretical framework. "Now the rationale of a mixed economy system was never clear in the classical analysis. In fact, state interference, they freely suggested, could prevent flexibility in prices and full utilisation of human and non-human resources . . . India's mixed economy . . . needs State intervention to raise stock of capital and build up infra-structure"[9]. In India we have a mixed economy where the public and private sectors are competing for scarce resources and thereby creating financing problems. In this case economic development cannot be left to the market forces to determine what is to be saved, invested and produced. The facts of the case are that neither the Classical framework nor the Keynesian mixed economy framework suit the Indian economy. The role of the public sector, as is generally understood, is not to boost effective demand but is, in fact, multi-dimensional in character. It is to generate profits and provide the infra-structure for economic development.

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[6]Oshima (October 1981), p. 13.
[7]Ibid., p. 15.
[8]Lewis (1972), p. 76.
[9]Hajela (1980–81), p. 94.

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It is to aid capitalist development by working out a system of incentives to stimulate the development of the private sector. The public sector is also many a time responsible for providing the required raw materials and other resources to the private sector. It is also commited to the objective of improving the welfare and living standards of the poor and backward sections. This capitalist sector is not just using reproducible capital but is burdened with the responsibility of resource creation. Where these fit into the classical framework has not been the subject of Lewis' analysis. Now it remains to be seen whether it is the private sector in India which could fit into Lewis' category of capitalist sector. Since India has adopted central planning the economic growth path is decided by the planning authorities and not by the behaviour of the private sector. Unlike other mixed economies the private investors in India "have to learn to think in terms of incentives which can be permitted within the overall interest of the economy and which may not be the same as the incentives which their counterparts enjoy in more fortunate parts of the world"[10].

The developments in the private sector cannot be compared to its western counterparts. The guiding factor for investor behaviour in the classical analysis is the profit motive which necessarily brings about improvements in output performance and/or reduction in costs. The growth of this sector in India is accompanied by heavy reliance on the public sector. Profits are more dependent on the supply of cheap raw materials, cheap credit, subsidies, tax concessions, depreciation allowances from the government than risk taking and innovations which were the basic elements of the classical analysis. Agreed that in a country like India support and protection were required in the early stages of development but then definitely not at the cost of a high cost inefficient sector. The performance of the public sector is also not very satisfactory. The public and private sectors contributed 12.0% and 4.3% of net savings as percentage of GNP respectively in 1980–81. This is not the appropriate place for a discussion on the respective performance of the two sectors. It is sufficient to say that there is a horizontal transfer of resources between the public and private sectors and the Lewisian reinvestment cycle cannot be seen in operation. This reinvestment cycle rests on the assumption of unlimited supplies of labor at a constant wage rate. In India this is known to be more dependent on thrift of the capitalist as well as the household sector[11]. The State plays a major role in providing incentives to stimulate higher levels of saving and their mobilisation into desired lines of investment. It is not the capitalist sector which is responsible for the decision making process but development bureaucrats in line with the specific aims

[10] Hajela (1969), p. 285.
[11] See Section C for a discussion on savings.

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and objectives of the planning commission. The classical framework cannot explain the functioning of a mixed economy since both are governed by a different set of rules.

(c) *The Behaviour of Savings in India*: The central problem in the Lewisian theory of economic development was to understand the process of transformation in an economy with voluntary saving ratio of 4 to 5% of its national income to that about 12 to 15% of its national income.

An examination of Table 2 makes an interesting study.

Gross domestic savings were 16.8% of gross domestic product in 1970–71. This ratio has risen further and in 1978–79 was provisionally estimated at 24.7%. In 1984–85 the quick estimates showed it to be around 22.1%.

"We are also familiar with the position that achievement of a 12% savings ratio would imply a transformation from underdevelopment to development. If this is correct, with our present savings ratio, we should really be an overdeveloped economy!"[12]

This is the first problem in the transformation process. The high savings ratio has not resulted in a rapid rate of growth as visualised by Lewis. Lewis contends, "The major share of savings is profits, and if we find that the savings are increasing as a proportion of national income, we may take it for granted that this is because the share of profits in the national income is increasing."[13] He stresses the point that the marginal propensity to save out of profits will be higher than other incomes.

A reappraisal of Table 2 shows that the gross domestic saving has been the highest in the household sector for all years going up from Rs. 4873 crores in 1970–71 to as much as Rs. 36829 crores in 1984–85. The corresponding contribution of the Private Corporate Sector has been very little: Rs. 656 crores in 1970–71 to Rs. 3589 crores in 1984–85 and the public sector contributing Rs. 1254 crores in 1970–71 and Rs. 6788 crores in 1984–85.

In percentage terms, the contribution of the household sector turns out to be 78.01%, Private corporate Sector 7.60% and the Pubic Sector 14.37% for 1984–85. But according to Lewis in "Unlimited Labour—Further Notes": "The proposition that the marginal propensity to save is higher out of profits than out of other incomes is the best explanation we have of why the savings ratio rises in the first stage of cconomic development[14]. Although the savings ratio has risen tremendously in the Indian Economy, it is not the private corporate and public sector that have contributed the larger share. The Indian case does not fit in Lewis' hypothesis.

In the 1954 publication, Lewis assumed that the 'subsistence sector'

[12]Hajela (1980–81), p. 98.
[13]Lewis (1954), p. 155.
[14]Lewis (1958), p. 17.

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TABLE 2

GROSS DOMESTIC SAVING AND GROSS DOMESTIC CAPITAL FORMATION (At Current prices)

(Rs. crores)

	1970–71	1975–76	1976–77	1977–78	1978–79*	1979–80*	1980–81*	1981–82*	1982–83*	1983–84*	1984–85*
1. *Total Gross Domestic Saving*	**6783**	**14928**	**18030**	**20230**	**24146**	**24703**	**29084**	**33867**	**37238**	**42824**	**4720**
	(16.8)	**(20.1)**	**(22.5)**	**(22.5)**	**(24.7)**	**(23.0)**	**(22.8)**	**(23.0)**	**(22.6)**	**(22.1)**	**(22.1)**
1. Household Sector	4873	10534	12698	14687	17754	17385	21879	23947	26375	32443	3682
2. Private Corporate Sector	656	1055	1147	1375	1611	2350	2615	2091	2994	3164	358
3. Public Sector	1254	3339	4185	4168	4781	4968	4590	7229	7869	7217	678
2. *Total Gross Domestic Capital*	**7177**	**14811**	**16721**	**187652**	**4274**	**25283**	**31185**	**36485**	**39811**	**45348**	**49781**
Formation (1+2+3)	**(17.8)**	**(19.9)**	**(20.8)**	**(20.9)**	**(24.8)**	**(23.5)**	**(24.5)**	**(24.8)**	**(24.2)**	**(23.4)**	**(23.4)**
I. *Gross Fixed Capital Formation*	**6305**	**13330**	**15303**	**17219**	**18876**	**21307**	**25216**	**29617**	**34775**	**40178**	**44954**
(a) Public Sector	2394	5600	7048	7697	8376	9974	11680	14577	18498	20649	24269
(b) Private Sector	3911	7730	8255	9522	10500	11333	13536	15040	16277	19528	20685
II. *Changes in Stocks*	**1029**	**3170**	**2402**	**1402**	**4108**	**4836**	**6202**	**6776**	**5149**	**6403**	**7273**
(a) Public Sector	379	2077	1465	—247	1273	1842	2246	2951	1549	1124	2503
(b) Private Sector	660	1093	937	1649	2835	2994	3956	3825	3600	5279	4770
III. *Errors and Omissions*	**−167**	**−1689**	**−984**	**+144**	**+1290**	**−860**	**−223**	**+92**	**−113**	**−1233**	**−2446**

Note: Figures in brackets indicate percentages to gross domestic product at current market prices.
@Provisional.
*Quick Estimates.

Source: Economic Survey, Govt. of India, Ministry of Finance 1985/86.

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used no reproducible capital and that here the marginal propensity to save was zero. Lewis reformulated his thesis in the second article. He admitted that the subsistence sector may use reproducible capital and defined the capitalistic sector as "that sector of the economy where labour is employed for wages for profit making purposes."[15] The subsistence sector does not employ labour for wages although it may be using capital. In the capitalistic sector the worker produces wages and surplus and would be in excess outside the capitalistic sector. The propensity to save out of profits would be higher than out of other incomes. This means that the contribution of the subsistence sector is labour supply at a constant wage rate. It is not expected to contribute to capital formation. An examination of Table 3 reflects a different picture for the Indian Economy.

The share of agriculture etc. in gross capital formation in 1970–71 was Rs. 1,365 crores. In the same year, the share of Mining and Manufacturing was Rs. 2827 crores. The corresponding figures for 1979–80 are Rs. 5403 crores and Rs. 10673 crores respectively.

In percentage terms, the share of agriculture etc. in gross capital formation in 1970–71 was 19.01% and that of mining and manufacturing 39.38%. In 1979–80, the percentage shares work out to be 20.75% and 43.93%.

The above data does not correspond to Lewis' assertion that the subsistence sector has no propensity to save. As seen, agriculture has contributed a significant share in gross capital formation. This does not correspond with Lewis' hypothesis.

(d) What is most important from Lewis' point of view is whether the demand for labour in sectors where wage, labour-capital relationship is operative, falls short of the supply of labour at the going wage rate. The defining characteristic of the Lewis model is the postulate that real wages can be assumed to remain unaltered in the course of the development process till the turning point is reached.

Graphs 1 and 2 show real wages based on data from the various issues of the ILO'S year book of Labour Statistics for Asian countries (whose wage indices were deflated by the consumer price index, found in the IBRD'S World Tables 1980).[16]

We will take the case of India. Graph 1 and 2 show that real wages in both manufacturing and agriculture for our practical purpose, were roughly constant till the early 70's and then in the latter part of 70's and early 80's showed a declining trend. Till the early 70's one of the basic postulates of the Lewis type growth is broadly satisfied. For the latter part of 70's and early 80's we need to redefine Lewis' basic postulate of constant real wages. If not only constant wages under conditions of labour

[15]Ibid., p. 8.

[16]Reproduced from Oshima (1981), pp. 3–4.

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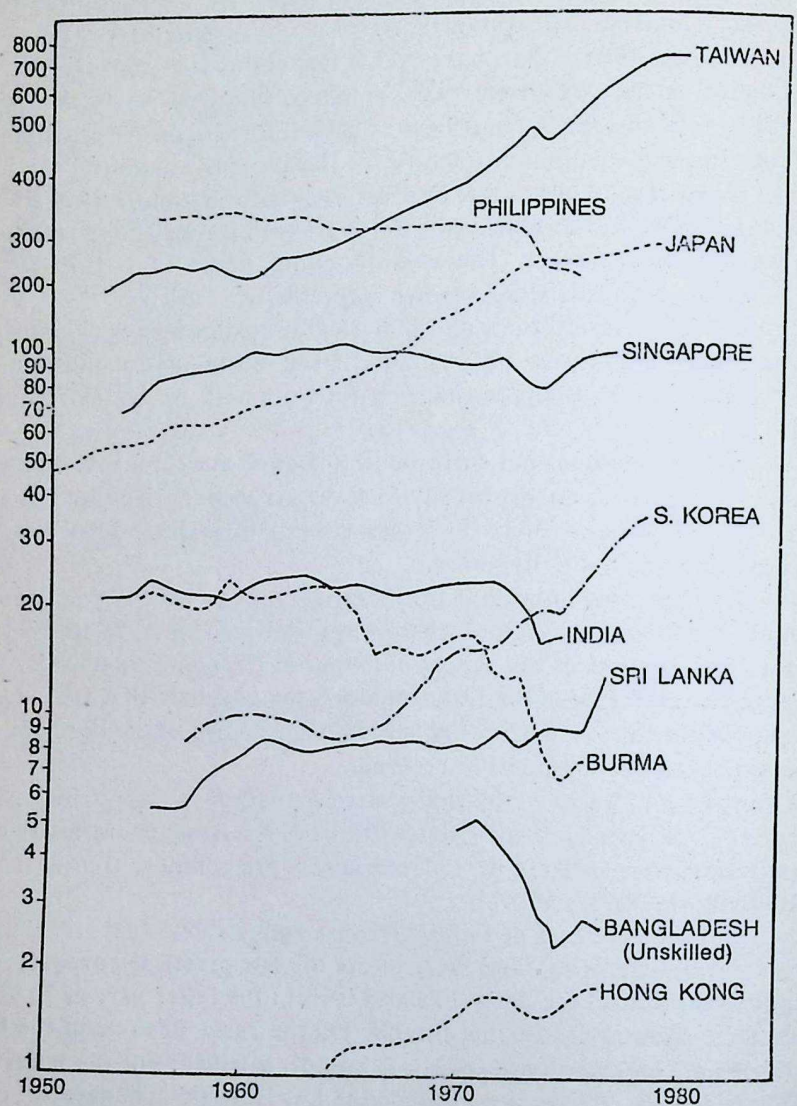
supply but low wage levels was the major consideration in the growth of manufacturing then the rate of growth of manufacturing and real per capita income should have been very high.

We now turn to Table 4 to examine the rate of growth of real per



Source : ILO Yearbook of Labour Statistics and IBRD World Tables 1980

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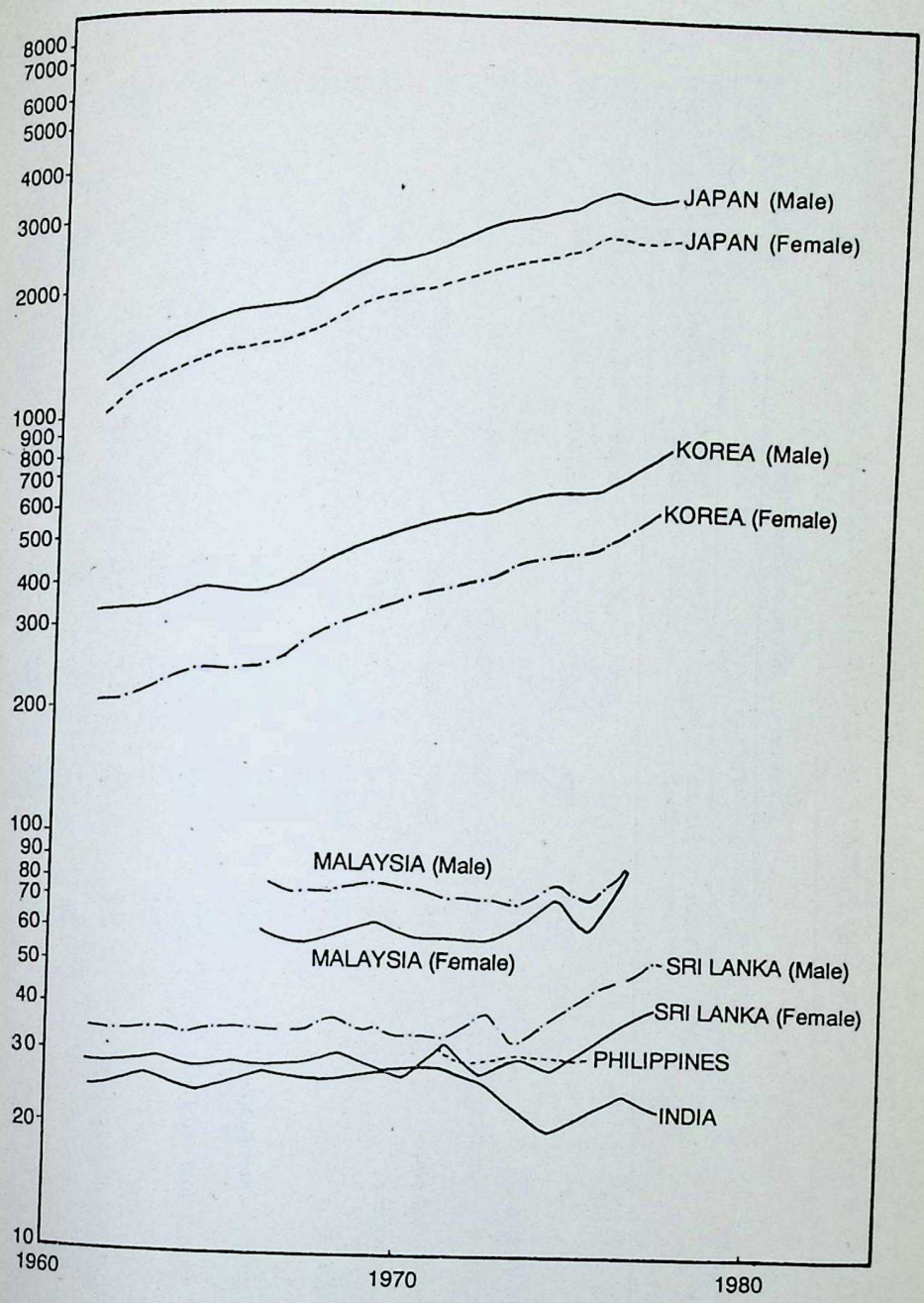

Source : ILO Yearbook of Labour Statistics

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TABLE 3

SHARE OF PUBLIC SECTOR AND PRIVATE SECTOR IN GROSS CAPITAL FORMATION : 1970–71 & 1979–80

Activity	Gross capital formation (Rs. crores)						Share in total captal formation : 1979–80		
	1970–71			1979–80					
	Public sector	Private sector	Total	Public sector	Private sector	Total	Public sector	Private sector	Total
Agriculture etc.	**348**	**1,017**	**1,365**	**1,637**	**3,406**	**5,043**	**32**	**68**	**10**
Agriculture	329	969	1,298	1,565	3,260	4,825	32	68	10
Forestry and logging	19	5	24	72	15	87	83	17	10
Fishing	—	45	43	—	131	—	—	100	10
Mining, Manufacturing etc.	**1,163**	**1,664**	**2,827**	**5,887**	**4,786**	**10,673**	**55**	**45**	**10**
Mining and quarrying	84	8	92	806	64	870	93	7	10
Manufacturing	436	1,540	1,976	2,491	4,366	6,857	36	64	10
Construction	3	106	109	78	289	367	21	79	10
Electricity, gas and water supply	640	10	650	2,512	67	2,579	97	3	10
Transport, Communication and Trade	**710**	**706**	**1,416**	**1,714**	**2,049**	**3,763**	**46**	**54**	**10**
Railways	251	—	251	643	—	643	100	—	10
Other transport and storage	204	303	507	553	795	1,348	41	59	10
Communication	56	—	56	297	—	297	100	—	10
Trade and hotels	199	403	602	221	1,254	1,475	15	85	10
Financial and Real Estate	**17**	**979**	**996**	**69**	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

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Financial and Real Estate	17	979	996	69	2,638	2,707	3	97	10
Banking and insurance	17	11	28	69	82	151	46	54	10
Real estate, ownership of dwellings and business services	—	968	968	—	2,556	2,556	—	100	10
Community and Personal Services	535	38	573	2,061	47	2,108	98	2	10
Public administration and defence	471	—	471	1.686	—	1,686	100	—	10
Other services	64	38	102	375	47	422	89	11	10
Commodity Sector (A + B)	1,511	2,681	4,192	7,524	8,192	15,716	48	52	10
Non-commodity Sector (C + D + E)	1,262	1,723	2,985	3,844	5,422	8,578	45	55	10
Total (A to E)	2,773	4,404	7,177	11,368	13,142	24,294	47	53	10

Source : Basic statistics relating to the Indian Economy, Vol. I, All India Centre for Monitoring Indian Economy (Bombay), Aug. 1982/ Table 6.5.

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TABLE 4

AGGREGATE AND PER CAPITA GNP AND NATIONAL INCOME : 1948–49 to 1982–83

Year	GNP at current prices		Real national income			
			Aggregate		Per capita	
	Aggregate (Rs. crores)	Per capita (Rupees)	Index	% change	Index	% change
1950–51	9,523	265	100.0	—	100.0	—
1951–52	9,986	274	102.1	2.1	100.5	0.5
1952–53	9,734	262	105.8	3.6	102.1	1.6
1953–54	10,432	275	112.7	6.5	106.8	4.6
1954–55	9,655	250	115.5	2.5	107.4	0.6
1955–56	10,251	261	119.3	3.3	108.9	1.4
1956–57	11,799	294	125.8	5.4	112.6	3.4
1957–58	11,966	293	123.0	−2.2	108.0	−4.1
1958–59	13,403	321	133.5	8.5	114.6	6.1
1959–60	13,922	327	135.5	1.5	114.2	−0.4
1960–61	14,946	344	144.9	6.9	119.9	5.0
1961–62	15,879	358	149.7	3.3	121.0	0.9
1962–63	16,991	374	151.9	1.5	120.1	−0.7
1963–64	19,544	421	159.9	5.3	123.7	3.0
1964–65	22,897	483	172.2	7.7	130.4	5.4
1965–66	23,948	473	162.0	−5.9	119.9	−8.1
1966–67	27,432	554	163.2	0.7	118.3	−1.3
1967–68	32,036	633	177.6	8.8	126.0	6.5
1968–69	33,024	638	182.4	2.7	126.4	0.3
1969–70	36,580	691	123.7	6.2	131.5	4.0
1970–71	39,979	739	204.6	5.6	135.8	3.3
1971–72	43,065	777	207.5	1.4	134.5	−1.0
1972–73	47,563	840	204.4	−1.5	129.6	−3.6
1973–74	58,615	1,012	215.0	5.2	133.3	2.8
1974–75	69,304	1,173	218.2	1.5	132.5	−0.6
1975–76	73,829	1,218	239.5	9.8	141.9	7.1
1976–77	80,108	1,292	242.0	1.0	140.1	−1.3
1977–78	89,863	1,417	263.4	8.8	149.1	6.4
1978–79	97,288	1,501	276.8	5.1	153.3	2.8
1979–80	1,06,220	1,602	261.9	−5.4	141.8	−7.5
1980–81	1,25,744	1,855	281.5	7.5	149.3	5.3
1981–82 (a)	1,46,000	2,100	294.5	4.6	153.4	2.8
1982–83 (a)	1,63,000	2,300	293.0	−0.5	149.6	−2.5
Annual rate of increase (%) between :						
1950–51 & 1960–61	4.6	2.7		3.8		1.8
1960–61 & 1970–71	10.3	8.0		3.5		1.2
1970–71 & 1980–81	12.2	9.6		3.3		1.0
1950–51 & 1982–83	9.3	7.0		3.4		1.3

(a) Estimated by the Centre for Monitoring Indian Economy.

Source : Basic Statistics Relating to the Indian Economy, Vol. I, All India Centre for Monitoring Indian Economy (Bombay), Aug. 1982, Table 8.3.

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capita income. The data reflects that there has been a deceleration in the growth rate of real per capita income—from 1.8% per annum during 1950's to 1.2% during 1960's and 1.0% during the 1970's. This is in contradiction to the Lewis hypothesis. With empirical evidence satisfying the basic tenet of the model—constant wages till the early 70's and low wages later, real per capita income growth is too low to satisfy the Lewisian growth process. A look at Table 5 further proves the point that availability of cheap labour has not resulted in high industrial growth rates.

TABLE 5

INDIA'S INDUSTRIAL PRODUCTION
(Organised Sector Only)

Annual Rate of Increase (%) between:			
1950 and 1960	7.4	1955 and 1969	9.8
1960 and 1970	6.3		
1970 and 1980	4.2		
1980 and 1981	6.1	1970 and 1981	5.9

Source : Basic Statistics relating to the Indian Economy, Vol. I. All India Centre for monitoring Indian Economy, Aug. 82.

The most important fact that stands out from the data is the steady deceleration in the growth rate decade after decade, i.e. from 7.4% during the fifties to 6.3% during the sixties and 4.2% during the seventies.

The near constancy of the real wage rate would in Lewisian terms imply comparative cost advantages in trade. Exports are the means to finance economic development and cost advantages would play an important role in Lewis' concept of 'reinvestment cycle'. India's export performance indicates that constancy in real wages have not been accompanied by an increasing share of India's exports in world markets. In 1983–84, India's share in world exports was an unimpressive 5.198%. In the same year the share of developing countries was 29.99%. This is after three decades of planned economic development. Earlier in 1960–61, when developing countries had a share of 28.87%, India's share was 1.1278%. Not only is the export performance dissatisfactory when looked at from the share in world exports but also when looked at from the share in developing countries exports, India's share in developing countries exports has gone down from 3.9% and 4.10% in 1960–61 and 1962–63 to 1.73% in 1983–84[17].

Another indicator of growth is the growth of employment opportunities. Usual status unemployment has risen from 1.3 million in 1961 to 7.11

[17]Data are from Economic Survey, various tables.

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million in 1978. Weekly status unemployment which in 1958–59 was 8.98 million reached 11.25 million in 1977. Daily status unemployment was 18.63 in 1972–73 to 19.17 million in 1977–78[18]. These figures lead to two interesting conclusions. Firstly, the share of seasonal unemployment (daily and weekly status) has always been large as compared to usual status unemployment. This point has also been discussed in the previous section. But the second interesting feature that results from this data appraisal is that while seasonal unemployment has not risen tremendously, the growth in usual status unemployment has been faster. Therefore both the availability of labour (both seasonally and round the year) and near constant wages have not led to historical growth patterns visualised by Lewis.

Thus the condition of constant real wages is not a sufficient condition for the growth of the capitalist sector.

Harry T. Oshima argues against the condition of constant wages as necessary for economic growth. "At bottom, my doubts about dualistic theories positing growth with constant wages are due to the inability of such wages to motivate workers for the kind of work effort required for the 20th century technology at an underdeveloped stage where wages hover at subsistence levels. Productivity and wage increases are needed in the main sector, agriculture". And in industry "Rising real wages for experienced workers are necessary to motivate the worker to improve his skills and his performance for greater productivity. On the management side, they enable the firm to retain the services of the able workers and in the long run compel the management to substitute more and better machines as costs pile up. And increased wages for workers permit the firm to attract better quality workers from the schools and farms. Thus what is missing in the Lewis model is the failure to take into account the quality of manpower being too exclusively concerned with its quantitative aspects[19] ".

In the above study, he proves that the countries with fast growth of GNP per capita, real wage in manufacturing have been rising during years when surplus labour was still plentiful, contrary to expectations from the Lewis assumptions e.g. Japan, Taiwan, South Korea and Hong Kong.

India's economic development can therefore not be discussed in Lewisian terms[20]. Difficulties are mainly because the conditions prevailing in 19th century England are not the same as those prevailing in India in the 20th century. The technological changes that have evolved are also important. Also important to consider are international relations. India's

[18]Data are from Krishna (1984), various tables.

[19]Oshima (October 1981), p. 18.

[20]See Bhardwaj (1979) far an alternative framework for the analysis of the growth process in a country like India.

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development cannot be explained in terms of stages. The development of England can be explained in terms of Lewisian stages but what is to be borne in mind is that it was aided to a considerable extent by the supply of cheap raw materials from India and other colonies.

The traditional economies have for a long time been exploited by the advanced countries. In the developing countries "the emerging so called modern sector thus represents neither development of a kind similar to that of the metropoles nor true development by any normative criterion. Such is the structure of international relations that the underdeveloped countries are unable to generate a process of independent capitalistic development but are restricted to a warped, dependent comprador form of relationship benefiting only a minority in each country, and increasingly unable to provide employment for, and generate development from, the number of job seekers piling up in the cities. The Lewis process does not operate and the Third World masses are excluded from participation in the capitalistic world growth[21]."

4. Why does India not have Higher Growth Rates of Real GNP?

An attempt is made in this section to analyse some of the factors that have been responsible for slow growth rates.

Stepping up the rate of savings and investment has been a major objective of the Five Year Plans. What is interesting to analyze (Table 2) is the low rate of saving by the private corporate sector and public sector when overall savings ratio has been rising. The low rate of savings of the private corporate sector can be attributed to the operation of the "Demonstration effect". Copying the 'Joneses next door' is the impact of the British Rule in India. In one set of circumstances, there may be nothing wrong with this philosophy. It helps people to strive for more and improve material living standards. The importance of improving living standards in the process of economic development is recognized but one needs to draw a line between materialism and raising the living standards of the poor. Economic development essentially involves some sacrifices. But the values presently prevailing determine the demand patterns of the middle and high income groups in favour of conspicuous consumption goods. The fast rate of growth of conspicuous consumption goods reflects the effective demand for these products and partly explains the low rate of savings of the corporate sector. High income consumer goods (cars, air conditioners, refrigerators) grew much more rapidly than the middle income class (cycles, fans, sewing machines) or mass consumption goods (soap, kerosene, textiles). The output of the former grew during the fifteen year period (1951–65) about 100%, whereas the latter group less than 50%[22]. Hence,

[21]Leeson (1982), p. 4.
[22]Dorai (1978), p. 275.

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valuable resources have been diverted in building up conspicuous consumption goods.

However, a discussion on the poor performance of the public sector as well as the capitalistic sector cannot proceed till we discuss the planning strategy in India.

"Planning in India is wedded to the philosophy of balanced growth; yet one can find in the plan documents various discussions about priorities"[23]. The notion of priority to be attached to different sectors of the economy is in contradiction with the notion of balanced growth strategy according to which investment allocations among the different sections of the economy are to be determined by the requirements of consistency. Priorities have been attached to different sectors and practical policy has deviated from the allocation in accordance with balanced growth. These have largely been influenced by the Mahalanobis model which was applied in India in the form of Recommendation in the Second Plan. The basic idea was that since productivity was higher in the capital-intensive sector, a country in the early stages of economic growth should invest in this sector which will enable the country to produce the machines and materials needed to develop agriculture and light industries. The problem with the strategy has been twofold. Inefficient linkages have led to high costs and in some cases inferior quality and these have a cascade effect from upstream to the lower-stream industries. "The heavy industries become increasingly obsolete as leading industrialised countries fiercely compete to develop new technologies for their heavy industries, forcing India to adopt all kinds of protection for the survival of her own industries. The infant industry argument may not hold for the high technology industries in the 20th century"[24].

The slow rate of growth of the industrial sector was seen in Table 5. This could partly be explained by the emphasis on lumpy investments and partly by the failure to evolve a viable technology to suit domestic conditions. The investment in Research and Development has been less than 1% to gross national expenditure for all years. Technological breakthroughs cannot be achieved in a short space of time but the importance of directing the resources and scientific personnel in this area cannot be denied to solve the problems of low productivity and quality improvement. It is important to initiate the beginning of endogenous changes in technology.

Inefficiencies in the industrial sector can also be explained by the degree of protectionism in this sector. In the early stages of development protected markets are needed for the new upcoming industries to survive, but this cannot be done at the cost of protecting inefficient units. The process of economic development implies a process of change with some

[23]Rudra (1967), p. 1.
[24]Oshima (1981), p. 21.

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industries dying out and others taking their place in response to the changes in demand induced by economic development. Japan has been able to take steps to close down inefficient units. India still has to take such drastic measures and withdraw protectionist measures from inefficient plants. Freeing the market in this sense would lead to the inefficient units dying a natural death and new efficient units taking their place.

The other problem with the Mahalanobis capital-intensive strategy has been that it could not deal with the problems peculiar to Indian agriculture. "... one of the most conspicuous characteristics of the Mahalanobis model ... is that it does not take into account, directly or indirectly, the peculiar problems of agriculture in an underdeveloped economy like India. The two sectors of the model are, it will be recalled, the consumer goods producing sector and the capital goods sector. Agriculture is merged in the consumer goods producing sector.... The strategy given rise to by the Mahalanobis model is to invest heavily in and focus attention on the capital goods producing sector so as to maximise the long term growth in the consumer goods industries, and depend upon cottage industries for supplying consumer goods and generate employment in the short run ... the production of agricultural goods in agriculture is far from being an adequate condition for development as it calls for not only a technological but also an organisational and institutional revolution"[25]. The principal assumption in the Mahalanobis strategy appears to be that agriculture is unproductive and that industrialisation would produce the desired rise in overall efficiencies and growth. The failure of the unbalanced and capital intensive technology to produce results has led to the realisation of giving simultaneous attention to the agricultural sector. But, the free market model does not work in the agricultural sector. Looking at Table 6, we can see that the terms of trade for most years have been in favour of agriculture. Yet, this price incentive was not sufficient to induce higher productivity trends. The decadial rate of increase in agriculture has been decelerating. Price incentives alone are not sufficient. In the past, the Government of India has been supplying additional resources into this sector. These are required to be worked out in a comprehensive package of technological and institutional changes. In the past, insufficient agricultural growth rates have contributed a major share in rising prices and imports of food grains to stabilise the same. Inappropriate technology has led to rising costs. Thus a more balanced strategy is needed with due emphasis on the agricultural sector. The resource endowments make it a must to proceed along the path of economic growth through labour-intensive techniques and therefore the starting point is agriculture.

Agriculture-industry inter-relationships to increase net national pro-

[25]Rudra (1967), pp. 5–6.

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TABLE 6

INDICES OF TERMS OF TRADE, OUTPUT, AND MARKETED SURPLUS OF INDIAN AGRICULTURE

(1960–61 = 100)

Year	Net Barter Terms of Trade	Foodgrains Terms of Trade	Terms of Trade of All Agricultural Products	Income Terms of Trade	Agricultural Output	Marketed Surplus of Agriculture
1951–52	100.72	104.47	116.89	67.07	68.45	66.59
1952–53	99.13	116.84	96.28	72.41	72.15	78.05
1953–54	103.74	112.54	102.83	88.40	81.89	85.21
1954–55	97.02	91.84	95.47	85.99	82.57	88.63
1955–56	94.78	92.02	89.10	88.20	82.38	98.06
1956–57	102.46	109.20	98.16	100.67	87.15	98.25
1957–58	98.46	107.11	96.07	92.15	81.50	93.59
1958–59	101.66	113.43	98.37	97.95	94.06	96.35
1959–60	101.68	105.88	98.85	94.43	91.82	92.87
1960–61	100.00	100.00	100.00	100.00	100.00	100.00
1961–62	100.89	98.38	97.64	106.20	100.29	105.47
1962–63	99.09	99.69	95.16	106.17	98.73	107.15
1963–64	97.39	101.59	96.77	108.90	101.17	111.82
1964–65	108.66	118.80	107.88	124.67	111.98	114.73
1965–66	114.47	120.60	110.17	123.95	93.28	108.28
1966–67	123.07	131.81	117.56	129.04	93.38	104.85
1967–68	125.02	148.10	123.74	149.99	113.53	119.97
1968–69	116.27	126.91	122.21	143.62	111.78	123.52
1969–70	125.72	131.05	126.72	167.08	119.28	132.90
1970–71	127.32	125.82	124.20	178.88	127.95	140.50
1971–72	120.08	122.65	119.29	181.31	127.46	150.99
1972–73	118.90	128.20	119.23	173.81	117.43	146.18
1973–74		134.40	134.14	206.11	128.14	152.47
1974–75	133.92	146.78	128.16			
Compound rate of growth (%)	1.43	1.43	1.34	4.53	2.53	3.11*

Source : S. N. Mishra: Protection versus underpricing of agriculture in the developing countries: A case study of India in the Developing Economies, Japan, Vol. XXIV (June 1986), No. 2, Appendix Table III, p. 148.

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ducts are not just a question of supplying labour from one sector to the other at constant or rising wage rates. The agriculture industrial relationship in practice is more complex with agriculture providing foodgrains, and raw materials and also providing a market for industrial development to take place. What is needed is a more balanced approach with due emphasis on technology, reversing conspicuous consumption trends, aiding the healthy growth of the capitalistic sector by reducing protectionist measures and bringing about institutional and organisational changes in agriculture and industry.

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NATURE, CHARACTER AND DIMENSIONS OF RURAL POVERTY IN INDIA*

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1. Introduction

The recent estimate by the World Bank, that 40% of India's population lived below poverty line in 1988, has been a big cause of concern for economists, socialists, politicians, policy makers, etc. It implies that the trickle down theory has failed in eradication of widespread and massive poverty in India. Obviously both, the Mahalanobis and New developmental strategies could not result in percolation of fruits of economic growth to the poor section of the society. Four decades ago, India adopted planned economic development with socialistic pattern of society. Hence, social gain, not private profits was to be the determinant of economic development. The structure of socio-economic relations was to be planned through reasonably high increases in national income and employment, so that greater equity could be achieved. Consequently, fruits of economic development were expected to accrue more and more to the relatively less privileged classes of the society. Thus, implied in the phrase of socialistic pattern of society is the directive principle for the state that all people should have the right to adequate means of livelihood, employment, minimum education, protection against old age, sickness, etc. Obviously, eradication of mass abject poverty has been the widely accepted normative basis of economic and social thought of India's developmental efforts. Though, India attained around 5% growth rate per annum in GDP during Sixth and Seventh Five Year Plans, it is very disturbing to note that around 40% of India's population lived in absolute poverty in 1988. Moreover, poverty ratio for rural India stood around 41.7% while for urban area it was around 33.6% in 1988.

Failure of Mahalanobis strategy of development planning to eradicate poverty resulted in departure in the plan strategy. The new development strategy gave more stress on agriculture and resembled more with wage good strategy formulated by Vakil and Brahmanand. Hence, frontal attack on poverty was made through conscious and deliberate efforts via rural development programmes like IRDP (Integrated Rural Development

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Programme) NREP (National Rural Employment Programme) Minimum Needs Programme, etc. These programmes, however, have caused marginal decline in poverty ratio in India, still leaving a large proportion of population below poverty line and in the state of malnutrition, ill-health and short life expectancy. This implies that though our plans have explicitly stated the issue of poverty, it is the lack of explicitness in formulation and implementation of policies for the poor, that has resulted in marginal effect on massive and widespread poverty. Consequently, pervasive nature of absolute poverty got wide recognition over time. When we take a global view of poverty it is quite interesting to note that around half of the world's people in absolute poverty lived in South Asia (World Bank, 1980), mainly in India and Bangladesh. Moreover, with the exception of Latin America (where 40% poor live in towns) the poor are observed to be rural dwellers and dependent on agriculture, and majority of them belong to the group of landless labourers. The Brandt Commission Report (1, 1980), has identified two geographical belts of absolute poverty. One belt includes Sub-Saharan countries of Africa and the other includes countries like two Yemens, Afghanistan, Pakistan, India, Bangladesh, Burma, Kampuchea Vietnam, Laos and Indonesia. These countries resembled in many socio-economic characteristics. About 50% of their population was suffering from absolute poverty. The proportion of rural poor, mainly the small farmers and landless labourers was very high in total number of absolute poor in these countries. Majority of the poor in these countries suffered from malnutrition. Moreover, four-fifths of the poor remained rural. The major thrust of worldwide debate on poverty has therefore revolved mainly around absolute poverty in rural areas. Same is true for India, because majority of its population still lives in villages, and intensity of poverty has been much more in rural India. Obviously, to formulate policies appropriate for reduction in poverty, especially, rural poverty, it is highly essential to know and understand clearly the nature, character and dimensions of rural poverty in India. Hence, an attempt is made in this study to explore the nature, character and dimensions of rural poverty in India by presenting the findings of various rural poverty studies in India.

2. Concept and Nature of Poverty

(A) Absolute Poverty : Conventional Definition

The appropriateness of policy prescription for mitigation of absolute poverty in rural India depends upon the clear understanding of the concept and nature of rural poverty. Dharam Narain's research on poverty in late 1960's was a pioneering effort which provided great insight into the nature and causes of poverty rather than providing just a "unified field theory" (2, 1986).

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The dictionary meaning of the word poverty refers to the condition of being poor with respect to goods or means of subsistence, or, to the deficiency or lack of something specified or desirable. The word poor implies having nothing in the way of wealth, goods or means of subsistence, or, lacking means to procure necessaries of life. In other words, the word poor refers to those people who clearly lack the means or capacity to support themselves and include the old, the sick, the disabled, etc. This condition of poverty (being poor) can be overcome through availability of resources, which itself depends upon the stage of economic development attained by the country. Taira Koji terms this stage of poverty as, "Case Poverty". However, economists are mainly concerned with nebulous concept of poverty which relates to the condition of poor below the community standard of living. It is this concept of absolute poverty with which we are concerned. It may, however, be noted that the specified community standard of living itself may be different for different countries, or, different for the same country over a period of time. Subsistence level, i.e., possessing just the necessaries of life for the survival of an individual, reflects the classical concept of minimum standard of living. As regards India, subsistence level is considered in terms of purely biological minimum necessary for the survival of an individual. It therefore includes food items only. Hence, the concept of poverty used in India refers to the condition of people living below the subsistence level. Thus, absolute poverty refers to the condition of deprivation or dispossession of something minimum. This something can be expressed in terms of minimum income, expenditure or nutritional level required by a person for remaining alive. Obviously, people who fail to reach this minimum consumption standard are regarded as 'poor'. In order to quantify the extent and incidence of poverty, it is defined in terms of poverty line which is specified in terms of minimum income, expenditure or nutritional level. These definitions of poverty, known as poverty norms/lines distinctly contribute to the framing of policies reflecting alternative ways of documenting human welfare. The poverty line is defined in following ways.

(a) *Direct Approach to the Measurement of Poverty Line*: If poverty line is specified in terms of minimum actual calorie intake of a person, it refers to the direct approach. People consuming less than this specified minimum calorie intake are said to be living in poverty, and are called poor. Poverty then becomes synonymous with undernourishment. Therefore, if nutritive goods are characterized as 'inferior' goods, then, this definition leads to a shocking conclusion, that, poverty increases as income rises, because, calorific value of diet may fall as we move up the income scales. Moreover, this approach fails to catch the differences in physical requirements necessary to meet desired objectives and are subject to questionable value judgments about other peoples' needs.

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The nutritional approach to poverty line may be specified in terms of calories, proteins, minerals, vitamins, etc. Especially, the first two of these are much required for the sustenance of healthy human being. The minimum required cannot be the same for an adult and a child, or for persons doing light or ardous work. Having worked out the foodstuffs involving these nutritional minimums, they are to be translated in terms of cost at base-year prices. This can then be used as an index of poverty. This would provide a necessary insight into the structure of poverty, giving guidelines for policy prescriptions. Specifying poverty line in terms of calories and proteins has a very important policy implication. Proteins are, by and large, more expensive forms of food than most root and cereal crops. Professor Sukhatme, through his extensive work on poverty, revealed that most of the malnourished suffer mainly from calorie rather than protein deficiency. Non-existence of calorie deficiency implies non-existence of protein deficiency too. On the other hand, existence of protein deficiency involves existence of calorie deficiency also, as such people simply do not have enough to eat. This implies that unless enough food is provided to the people, there is no sense in providing them with protein foods. Most of the cereals not only contain proteins required for normal human body, but also provide adequate calories, if taken in enough quantities. Moreover, deficiency of calories leads to burning proteins for providing supply of energy to body. Hence, nutritional policy should be based on the dictates of commensense, i.e., feed the hungry.

(b) *Indirect Approach to the Measurement of Poverty Line*: According to this approach, poverty line/norm is specified in terms of minimum cost of nutritionally adequate diet and is expressed in terms of minimum income or expenditure necessary for it. This involves appropriateness of average calorie norm and the price adjustments over time. Professor Sukhatme has criticised the concept by arguing that interpersonal nutritional needs differ and there exists adoptive mechanism over time. Hence, average calorie requirements exaggerate the true requirements. The magnitude of error in this definition is still being debated. Moreover, income measure of poverty is not responsive to variations in the efficiency with which income is converted into satisfaction of peoples' own needs and wants.

Both these approaches hide the movement of people in and out of poverty line in accordance with life-cycle phenomenon. It fails to indicate, that the constancy of poverty ratio does not imply that an individual observed poor at one time, is poor for all the time.

(B) Revised Definition of Poverty

Above given definitions of absolute poverty have been greatly questioned as these concentrate on food only. People also require other non-food items of consumption for their survival, e.g., minimum shelter, clothing,

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pure drinking water, etc. This calls for revision of the conventional definition of poverty. The problem does not end here. The poor also depend upon the distribution and availability of goods and services which form the part of social consumption. Hence, factors like education and health facilities, longevity, security of consumption levels and health from extreme shocks like famines or floods, access to water, education, medical facilities, pure drinking water, sanitation, public distribution system, etc. should all be considered while defining poverty line. If poverty line is redefined by including the above mentioned items, it would bring refinedness in its definition but may cover larger proportion of the country's population.

It may be argued that the Indian Government takes care of providing free education, health, sanitation infrastructural facilities, etc. to the rural poor via its rural development programmes like minimum needs programmes. Hence, there is no need to include these in the definition of poverty. This, however, is not proper, because majority of the rural population still remains deprived of above mentioned facilities.

(C) Sen's Measure of Poverty

The above given measurement of poverty line necessarily involves arbitrariness, especially when it is applied to a country like India, so vast and diverse. Separation of poverty from social environment and individual viewer's subjective aversion to the economic vulnerability of some vis-a-vis other within the same social group is not possible. Moreover, all those who are classified as poor are not equally poor and poverty is likely to become more and more intense with every fall in income levels. Therefore, Amartya Sen (2, 1986) argues that though poverty cannot be identified with inequality, we cannot dismiss the close association between the two. Poverty is also very close to unemployment. Hence, A. K. Sen has evolved a new measure of poverty.

Since the conventional method of measuring poverty expresses the number of people below poverty line as percentage of the total population, Professor Sen labels it as Head Count Ratio, "H". This ratio does not discriminate between less poor and more poor amongst the poor people. If poverty line describes subsistence level very strictly, people having incomes below poverty line should perish, and the measure of poverty would then always tend to be zero. However, people still continue to survive with just a little less than poverty line income or much less than that. This implies that starvation can be of various degrees, causing more or less acute sufferings. Professor Sen, therefore, defines poverty in terms of ranking and weighing the income shortfalls of he poor from the poverty level. He argues that his measure of poverty, "P", is superior to "H" and other standard measures of relative inequality, e.g., Gini Coefficient. The latter two are termed by him as "Gross Measures of Poverty". The ranking of the poor be made in ascending order, so that the richest

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among poor gets first rank and the poorest of the poor gets last rank. He also suggests that higher weight be given to poorest than the relative better off in the poor. He further observes that the poorest of the poor, called as "hard-core poor", are generally left out of the income-generation and transfer process taking place via various factors in any economy (2, 1986). An individual's ability to meet some basic needs is affected by many factors. Hence, mere mention of minimum income level is not enough. Moreover, the cut-off points given by the poverty lines based on average behavioral characteristics are useful, provided it is lowered down excluding those individuals below the poverty line who may have superior managerial skill, make more efficient use of resources and are able to achieve the desired basic needs.

The above given discussion thus reflects various issues involved in the definition of poverty. A researcher, therefore, has to be very careful in adopting the measure of poverty. A study, measuring poverty through all the three measures would be very interesting and promising.

(d) *Poverty Gap Ratios*: Relative intensity of poverty among poor can be captured also by aggregated income expenditure shortfalls as proportion of specified poverty line. These two ratios ignore the total number of poor, and are insensitive to the transfer of income from more poor to less poor which is captured by Sen's Index 'P.' Jain, etc. (3, 1988) have used other variants of these forms to measure poverty ratio and its incidence.

3. Concepts of Relative Poverty

This concept of poverty is closely related to inequality in income or consumption, and therefore does not emphasize the corresponding state of deprivation of the people at the rock-bottom of income or consumption levels. It reflects the relative positions of economies or people in the same region or between regions at a given time or over a period. Hence, relative poverty is measured through measures of inequality, e.g., Lorenz Curve, Gini Co-efficient, Rank Correlation coefficient, etc. These measures of inequality depend on mean value and are insensitive to equiproportionate increase or decrease in income or consumption of individuals and groups.

Having examined the concept of poverty, its nature becomes very clear. As regards India, basic issue of poverty revolves around absolute poverty, generally defined in conventional terms, i.e. minimum income/ consumption, purely biologically necessary for the survival of human being. As regards relative poverty, though India also suffers from being relatively poor than developed countries of the World, the issue of relative poverty is not as serious as that of absolute poverty. Moreover, within the poor, the degree of deprivation differs a lot, particularly in case of rural poor.

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4. Character and Dimensions of Rural Poverty

We discuss in this section of the article, various factors that characterize rural poverty in India. While examining these characteristics, we also would pinpoint various dimensions of rural poverty. Thus, we give below a combined picture about the qualitative and quantitative aspects of absolute rural poverty in India.

(a) *Size and Incidence of Rural Poverty* : A number of studies have been undertaken in India to estimate the number of poor and the extent of poverty in both the rural and urban areas. These estimates are based on different sources like NSS (National Sample Survey), NCAER (National Council of Applied Economic Research), CSO (Central Statistical Organisation), etc. by different experts using different methods and definitions of poverty line. Hence, these are likely to be underestimates, when accelerated rate of inflation is considered in comparison with stagnation in industrial growth and faltering in the growth of agricultural production.

Many of the studies are based on the concept of a minimum level of nutrition necessary for survival and its equivalent purchasing power, expressed in terms of minimum income or consumption, defining poverty line. These studies give different estimates of nutritional requirements at national level. It is frequently observed that regional low-cost diet differs significantly from the national one. Moreover data on income or consumption levels are available at current prices. Poverty estimates which involve intertemporal or spatial comparison, therefore, require appropriate price indices for deflating these values to obtain real values. Since there prevail differences in prices of identical goods between various regions, and consumption patterns of different groups also differ, the choice of correct price deflator becomes a big problem. Obviously use of different price deflators by different experts causes differences in their estimates and conclusions.

Finally, due to lack of sufficient data, experts have used some conversion factors to build up complete picture from fragmented data. For example, Dandekar and Rath (4, 1974) referred to top 30% and lower 30% of population while discussing about change in consumption levels, and Bardhan (5, 1974) uses a "conversion factor" appropriate to the bottom 50%. In short, on account of above given factors, there are some discrepancies in the estimates given for rural poverty in India. However, without falling into controversy over the accuracy of these estimates we present in Table I below the estimates of rural poverty in India, as per the studies of various experts.

A close examination of Table 1 reveals that these estimates of poverty relate to the period 1960–61 to 1988, with differences in data source, definition of poverty line, and its cut-off points. Obviously, the results do not fully agree. Following observation are made from Table I.

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(i) Majority of the studies, except World Bank Study, relied upon minimum expenditure required for survival and included mainly the food items in the definition of poverty line. The World Bank (6, 1989), however, defines poverty line in terms of "income level below which a minimum nutritionally adequate diet plus essential non-food requirements are not affordable."

(ii) The number of poor in absolute poverty between 1960–61 and 1968–69, though varies for different studies, shows a clear-cut rise, except in case of a study by Minhas. According to Minhas, the number of poor declined from 164 million in 1960–61 to 154 million in 1967–68, when poverty line is defined in terms of Rs. 200 per capita per year, and remains same for these years (210 million) if poverty line is defined as Rs. 240 per capita per year.

This discrepancy arises mainly due to the difference in the definition of poverty line adopted by Minhas, and the use of national income deflator for incorporating price changes. The use of such a price deflator neglects the fact that prices of commodities have risen faster for the poor than for the better-off pairs of the population. Bardhan and others have used agricultural labour consumer price index (ALCPI) for deflation which captures this aspect in a better manner.

For the year 1970–71, we have two estimates for number of rural poor, 196 million as per the estimates of Chatterjee, P. K. and Sinha, S. K. and 237 million as per World Bank Report (6, 1989). The big difference in these estimates is mainly on account of the definition of poverty line. The former includes only essential food items, while the latter includes both, the food and non-food items. Obviously, the World Bank Report gives quite large number of rural poor in 1970–71. As per Chatterjee, etc. study, the number of rural poor continuously rose between 1960–61 (135 million) and 1973–74 (198 million). This rise continued till 1977–78 as number of rural poor rose to 258 million as per the sixth plan estimate.

An interesting point to be observed from Table I is that as per World Bank Report, the absolute number of rural poor in India has increased marginally between 1970–71 (237 million), 1983 (252 million) and 1988 (252 million). Considering that World Bank definition of poverty line is much broader, the number will be much smaller if estimated as per the definition of planning commission.

In sum, these estimates show a continuous rise in absolute number of rural poor between 1960–61 to 1973–74, a decline thereafter, and stagnancy between 1983 and 1988.

(iii) All these estimates, except the World Bank Study, relate to the poor at the rock-bottom and allow for no margin of expenditure on health, education, or contingencies of any kind.

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TABLE 1

RURAL POVERTY IN INDIA

Studies/Authors	Basis for Data	Poverty Line (Rs. per capita per month/year	Poverty (minimum amount needed in Rs.) Measure (per capita per month)			Extent of Poverty	
			Consumption	Income	Calorie intake (nutritional minimum)	Total Population (Millions)	Percentage of Population
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1. Planning "Commission : Perspective of Development 1961–1976	N.S.S.	(a) Rs. 20/- per month at 1960–61 prices (all India)	Per capita per month (for all India)		2400 per day minimum calorie intake per person (in 1960-61)	217	Around 50% (all India) in 1960–61
2. Minhas B.S.	N.S.S.	(a) Rs. 16/70 per month (at 1960–61 prices) (Rs. 200/- p. a.)	Per capita per month			(a) 164 154	46.0 (1960–61) 37.1 (1967–68)
		(b) Rs. 20/- per month (at 1960–61 prices)	,,			(b) 210	59.4 (1960–61) 50.6 (1967–68)
3. Bardhan, P. K.	Second Pay Commission 1957, based on the work of Akroyd, W.	(a) Rs. 15/- per month (1960–61 prices)	Per capita per month			(a) 135	38.0 (1960–61)
		(b) Applying agricultural consumers price index Rs. 28/40 per month (at 1968–69 prices) for food and non-food items.				(b) 230	54.0 (1968–69)

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Table 1 (contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
4. Dandekar, V. M. and Rath, N.	N.S.S.	(a) Rs. 15/- per month (1960–61 prices)	Per capita per month		2250 per day per adult	(a) 142	40.0 (1960–61)
		(b) Rs. 27/- per month (at 1968–69 prices)	–do–			(b) 166	40.0 (1968–69)
5. Ojha, P. D. and Bhatt, V. V.	N.S.S.	Rs. 15–18 per capita per month (Ignoring short-falls of less than ten per cent)	Per capita per month		518 gms per head per day	184.2 289	51.8 (1960–61) 70.0 (1967–68)
6. Vaidyanathan, A.	N.S.S.	(a) Rs. 11/- per capita per month	Per capita per month			(a) 56.0	15.7 (1960–61)
		(b) Rs. 20/- per capita per month	–do–			(b) 211.0 (b) 276.0	59.5 (1960–61) 67.8 (1967–68)
7. Bhatty, I. Z.		(a) Rs. 15/- per capita per month (Rs. 180 p.a.)		Per capita Annual Income (at 1968–69 prices) for (a to e)		(a) 101	24.19 (1968–69)
		(b) Rs. 20/- per capita per month (Rs. 240 per annum)				177+	42.43 (1968–69)

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Table 1 (contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		(c) Rs. 25/- per capita per month (Rs. 300 p.a.)				235+	56.41 (1968–69)
		(d) Rs. 30/- per capita per month (Rs. 360 p.a.)				279+	67.15 (1968–69)
		(e) Rs. 35/- per month per capita (Rs. 420 p.a.) All at 1968–69 prices.				312+	75.02 (1968–69)
8. E.P.W. Da Costa	N.S.S.	Rs. 15/- per capita per month	Per capita per month			81.78	21.41 (1963–64)
9. Chatterjee, P. K. and Sinha, S. K.	N.S.S.	(a) Rs. 15/- per capita per month (at 1960–61 prices)	Per capita per month			135+	38.04 (1960–61)
		(b) Rs. 23.7 per capita per month (1965–66)	–do–			191+	48.75 (1965–66)
		(c) Rs. 28.8 per month (1970–71)	–do–			196+	45.45 (1970–71)
		(d) Rs. 42.5 per month (1973–74)				198+	43.86 (1973–74)
10. Sixth Five Year Plan	N.S.S.	Rs. 65/- per capita per month			2400 calories per day per person	258	51.2 (1977–78)

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Table 1 (contd.)

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
11. World Bank Report India : Poverty, etc.	N.S.S.	(a) Rs. 89/- per capita per month at 1983 prices	Per capita per month			237 252 252	53.0 (1970-01) 44.9 (1983) 41.7 (1988)

Source : (A) Papers by (i) Perspective Planning Division, Planning Commission, (ii) Minhas, B. S., (iii) Bardhan, P. K., (iv) Ojha, P. D. and Bhatt, V. V., (v) Vaidyanathan, A., (vi) Bhatty, I. Z., in Srinivasan, T. N. and Bardhan, P. K. (eds) *Poverty and Income Distribution in India*, Statistical Publishing Society, 1974.

(B) Estimates by E. P. W. Da Costa and Chatterjee, P. K. and Sinha, S. K. from *Income, Consumption and Poverty levels of Slum-Dwellers in Baroda City*, Unpublished Ph.D. Thesis, by Y. O. Parikh, Dept. of Economics, Faculty of Arts, The M. S. University, Baroda.

(C) Dandekar, V. M. and Rath, N. in Poverty in India", in *E.P.W.*, Feb. 1971.

(D) Chaudhari Pramit: *The Indian Economy: Poverty and Development*, Vikas, 1982.

(E) World Bank Report: *India: Poverty, Employment and Social Services*, December, 1989.

Notes : (1) Figures with + sign are author's estimates, based on Table IV given in this study

(2) Poverty line includes only essential food items for all studies, except for the World Bank which includes both essential food and non-food items.

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(iv) Though a trend of decline in absolute number of rural poor is indicated by the World Bank Study, the number, 252 million, is still a very big magnitude to contemplate.

(v) As far as incidence of rural poverty is concerned, the Head Count Ratio, H, shows increase between 1960–61 to 1968–69, except in case of studies by Minhas and Dandekar and Rath, for reasons spelt out eartier. Between 1968–69 to 1973–74, rural poverty ratio shows a decline (Except for World Bank Estimate for 1970–71), rising again between 1973–74 to 1977–78, Between 1977–78 to 1988, rural poverty incidence shows a decline as per the World Bank Study and is a very welcome trend.

(vi) Finally, Table 1 reveals that studies by Planning Commission, Dandekar and Rath, Ojha and Bhatt, rely upon expenditure required for minimum average calorie intake per adult person per day, while defining poverty line, which is highly objectionable. Professor Sukhatme (7, 1988) an internationally known dietitian and statistician, argues that energy intake differs widely even in similar people at similar levels of activities. This is because of intra-individual variations in energy intake which arise due to interaction between the genetic and environmental components. Obviously, the analysis of available experimental data indicates that energy intake is under partial, not complete biological or genetic control. Since minimum requirement under average calorie intake is fixed, it implies that individual having less than it is undernourished or the one having greater is over-nourished, leading to a very funny conclusion that almost everyone in the population is malnourished. According to old definitions of FAO publications, "If a man eats below the prescribed level of average requirement, he become thin and wastes away and if he eats above it, he becomes fat and is exposed to the hazard of obesity." According to this definition, average energy requirement is the dividing line between under-nutrition and over-nutrition. The estimates that half of the world is hungry and poor are based on this definition. Hence, Sukhatme comments, "In these assessments, however, the first half of the definition relating to 'under-nutrition' is emphasized to the 'letter', but conveniently and illogically the latter half relating to 'over-nutrition' is ignored". The most important issue forgotten in these discussions relates to the fact that under-nutrition is a pathological state, arising from inadequate intake of food over a period of time. Hence, estimates of average energy intake based at a point of time have little relevance for defining the extent of under-nutrition. Hence, considering the intra-individual and inter-individual variations in energy requirements, the nutrition state of individual, or a group of individuals, needs to be evaluated meaningfully. This requires a yardstick which would describe the behaviour of intake, expenditure, or balance over time in healthy active individuals, engaged in defined tasks and maintaining body weight. This leads to the conclusion that the field surveys of energy intake and their

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TABLE 2

EXTENT OF POVERTY IN INDIA : 1956–57 to 1988

Year	Poverty Line Rs. per Month at current prices	Rural				Urban	
		Percentage of population in Poverty (Head Count Ratio 'H')	Sen Index of Poverty "IP"	Rural Poor (In Million	Rural Population (Million)	Percentage of population in Poverty ('H')	Urban Poor (In Million)
1956–57	14.6	54.1	0.23	178	329.47		
1957–58	15.1	50.2	0.22	168	335.63		
1958–59	—	46.5	0.19	159	341.80		
1959–60	15.3	44.4	0.17	154	347.96		
1960–61	15.0	38.9	0.14	138	354.13	40.0	32
1961–62	15.5	39.4	0.14	142	360.29	39.4	32
1963–64	17.7	44.5	0.16	167	376.04	42.5	37
1964–65	21.3	46.8	0.17	180	383.92	45.7	42
1965–66	23.3	53.9	0.21	211	391.79	46.4	44
1966–67	28.5	56.6	0.24	226	399.67	48.4	47
1967–68	30.9	56.5	0.24	230	407.55	48.3	49
1968–69	27.8	51.0	0.20	212	415.42	45.5	47
1969–70	28.9	49.2		208	422.76	44.4	48
1970–71	28.8	47.5	0.18	205	431.15	41.5	46
		(53.0)		(237)		(45.0)	(51)
1971–72	30.0	41.2		181	439.05	—	—
1972–73	33.8	43.1		192	445.34	44.6	53
1973–74	42.9	46.1	0.17	208	451.63	38.7	48
1977–78	65.0	51.2	0.14	258	503.91	38.2	52
1983–84	89.0	44.9		252	561.25	36.4	65
1988		41.7		252	604.32	33.6	70

Sources : (i) Ahluwalia, M. S. : "Rural Poverty, Agricultural Production, and Prices : A Re-examination", in Mellor, J. W. and Desai, G. M. (eds.). *Agricultural Change and Rural Poverty : Variation on Theme by Dharam Narain*, Oxford University Press, 1986, p. 459. (ii) Sundrum, R. M. : *Growth and Income Distribution in India : Policy and Performance Since Independence*, SAGE, 1987, pp. 159–160, for Urban Poverty. (iii) World Bank : *India : Poverty Employment, and* Social Services, December 1989, pp. 57–59

Notes : Poverty estimates are based on above sources as follows :

(a) Rural Poverty Estimates between 1956–57 to 1977–78—Source (i), (b) Urban Poverty Estimates between 1960-61 to 1977–78—Source (ii) and, (c) Both Rural and Urban Poverty Estimates for 1983, 1988 are from Source (iii), (d) Figures in brackets for year 1970–71 are based on source (iii), and are based on definition of poverty line given by the same, (e) Poverty line for 1956–57 to 1977–78 period is defined as minimum expenditure needed for survival and therefore includes only food items. However, definition of poverty line as per World Bank Report is in terms of expenditure level at which minimum calorie intake and indispensable non-food purchases are assured. (World Bank Report, 1989). (f) Estimates are based on XII to XXXVIII NSS rounds.

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evaluation reported by the National Nutrition Monitoring Bureau (NNMB), and of intake and expenditure by NSS and Planning Commission, grossly over-estimate the incidence of under-nutrition and poverty. The problem of poverty is much wider than of providing income to the people below the so-called poverty line (8, 1988).

(b) *Dynamism of Rural Poverty*: One of the most fascinating aspects of rural poverty in India is that India has a time series of actual observations on it for more than 20 years. No other developing country has comparable time series data for so many years. These estimates of rural poverty are based on various data sources like NSS, CSO, NCAER, etc. Table 2 given below reveals the poverty estimates for both rural and urban India and reflects the dynamic nature of rural poverty in India.

Table 2 reveals that poverty estimates, Head Count Ratio, reflects fluctuating nature of incidence of both rural and urban poverty in India. The poverty ratio for rural areas declined from 54.1% in 1956–57 to 38.9% in 1960–61 (given five observations), rose to 56.6% in 1966–67 (5 observations), dropped again to 41.2% in 1971–72 (5 observations), increased to 51.2% in 1977–78 (3 observations), declining again to the level of 41.7% in 1988 (2 observations). It is interesting to note further that the lowest poverty level prevailed in 1960–61 for rural areas (poverty ratio, H, being 38.9%) and in 1988 for urban areas (33.6%).

A further look into Table 2 reveals that highest rural poverty ratio (56.6%) in India was observed for the year 1966–67 and the lowest (38.9%) in the year 1960–61. Though the rural poverty ratio has continuously declined between 1977–78 (51.2%) and 1988 (41.7%), it has yet not achieved the lowest level reached in 1960–61. We can therefore deduce that there is no empirical reason to contend that the rural poverty has been aggravated after green revolution. Finally, we can say that the dynamic nature of rural poverty is characterized by decline in upper bound of poverty fluctuations, with lower bound being slowly approached. There is prevalence of persistent short term fluctuations of considerable amplitude and width in rural poverty, denoting the absence of any clear cut secular trend.

The Cyclical nature of rural poverty is further confirmed by the estimates of Sen Index, 'P', which captured relative deprivation amongst the poor by ranking them according to their income shortfalls as explained earlier. It is obvious from Table 2 that Sen Index 'P' also is fluctuating like rural poverty ratio between 1956–57 to 1977–78. Table 2 reveals a fall in Sen Index between 1956–57 to 1961–62, then a rise till 1967–68, and a decline thereafter till 1977–78. Thus, a similar cyclical variation in 'P' confirms the dynamic nature of poverty.

A fall in the value of both, the poverty ratio, H, and Sen Index, P, implies that not only has the incidence of poverty declined, but, there is reduction in relative depriviation of the poor, i.e. reduction in income

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inequalities among the poor. Thus, not only does the proportion of poor in total population decline, but their relative impoverishment also declines.

By translating the series of 'H' and 'P' into a figure, we can clearly see the fluctuations in the two ratios. Figure 1 given below depicts 2½ complete cycles of peak-trough-peak years in both poverty ratio 'H', and Sen Index 'P', reflecting cyclical nature of rural poverty in India. It also indicates repetitive movements of considerable amplitude and breadth.

Table 2 and Figure 1 are based on the study by Ahluwalia (9, 1986) for the period 1956–57 to 1977–78. The estimates for the years 1983 and 1988 are based on the World Bank Report (6, 1989). The dynamic nature of poverty as shown by these figures has yet not been questioned for accuracy by experts and has thrown open a great challenge to Indian Social Scientists of explaining the factors responsible for fluctuations in the incidence of rural poverty in India.

Various experts have tried to explore these factors. Ahluwalia (9, 1986) attempted to explain variations in poverty incidence by factors like current and one year lagged agricultural income per head of the rural population (denoted by y and y_1 respectively), consumer price index for agricultural labourers (P) and time (t). By using various models, Ahluwalia concludes that there is an inverse relationship between the incidence of poverty and agricultural income per head (y). Hence, higher the value of y, lower would be the incidence of poverty and vice versa. Moreover, there is no evidence of working of this relationship since green revolution. It is further argued that large reductions in incidence of rural poverty can be brought about by introducing supplementary measures over and above the growth. Ahluwalia has also considered inflation as another factor affecting poverty. He has observed that rural poverty and the inflation, P, do not show positive association when technically more sound variable of price index or inflation is taken. P denotes consumer price index for agricultural labourers. Obviously, Ahluwalia's technically better measure of inflation does not support Dharam Narain's argument that the rural poor are specially vulnerable to inflation (as specified by Dharam Narain's measure of inflation). Lack of clear evidence on strong positive association between the incidence of rural poverty and inflation is quite surprising and needs further exploration. According to Ahluwalia, the Head Count measure of rural poverty aggregates across two socio-economic groups, viz., landless labourers and marginal farmers. The effect of inflation on these two groups is different, as the former may be hard-hit by inflation because of relatively large decline in their real wages (money wages rise less than the prices). However, the latter are less affected by inflation, because they consume what they produce, hence, with given production levels, their real incomes are not reduced much. On the other hand, if they have some marketable surplus, they become better off due to inflation, if terms of

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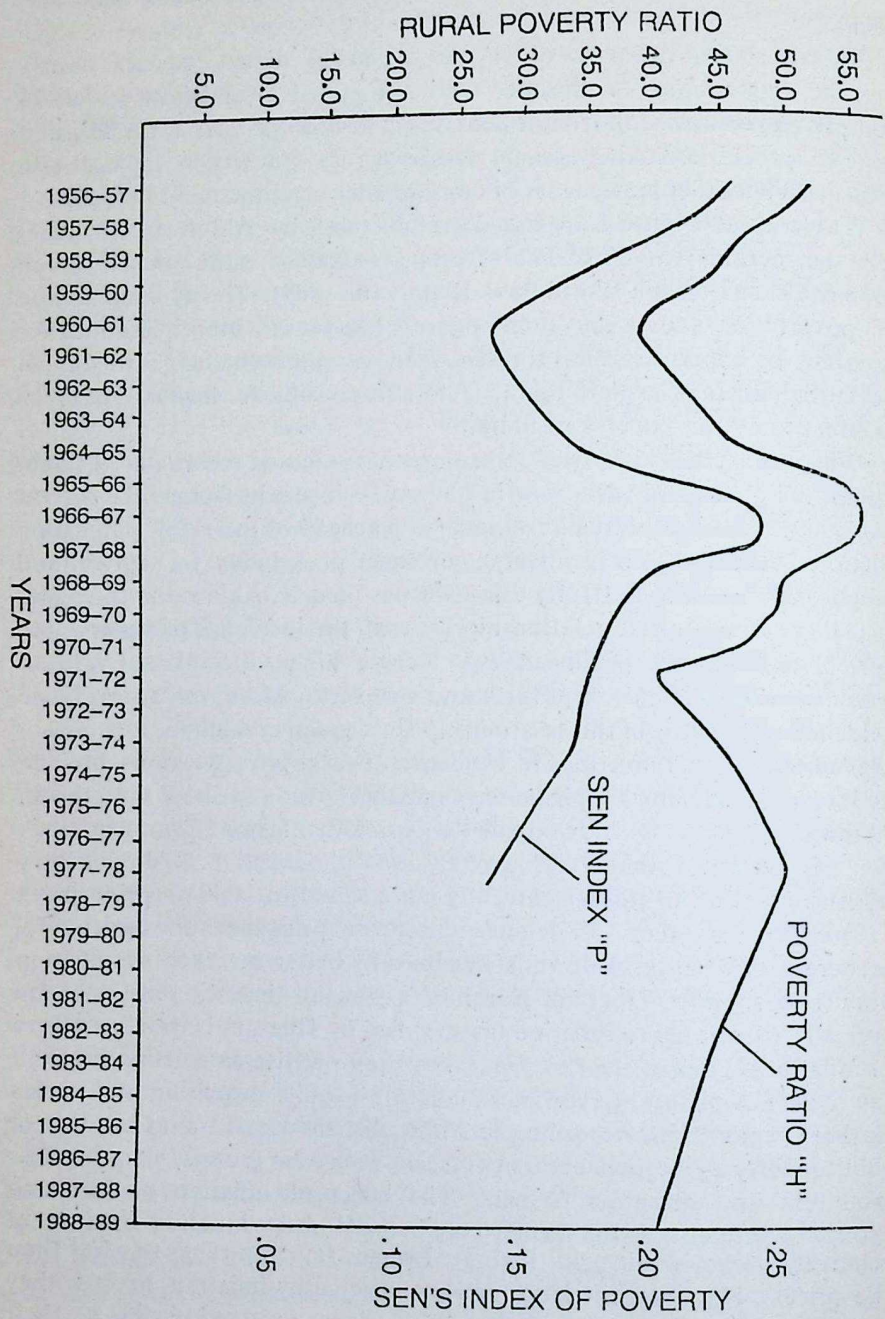

Fig. 1

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trade turn in their favour. Both, agricultural income per head and inflation, explain variations in Head Count Ratio and Sen's Index of Poverty and, thus, throw light on dynamic nature of poverty.

(c) *Demographic Features of Rural Poverty*: Extensive studies of rural poverty by Dandekar and Rath (10, 1971) and Gaiha, R. (11, 1988) and Gaiha, R. and Kazmi (12, 1982) have clearly brought forth following characteristics of rural poverty.

(i) Size of Household and Rural Poverty: According to Dandekar and Rath, rural poor are generally characterized by unduly large number of persons in their households; because of that, large number of dependents are to be supported per earner in the household. According to their estimates, the average size of rural household declined from 5.87 for the poorest 10% of rural population as per capita private consumption expenditure (PCPCE) increased to 3.78 for the richest 5% households. This conclusion is confirmed by Gaiha, R. and Kazmi (12, 1982) by their empirical findings which indicate that the proportion of rural poor households in total rural households of a given size increases as the size of household becomes larger, over a limited range; i.e, upto 7 persons, and thereafter, the proportion declines. The large number of children below age of 14 and old people, i.e. dependents, is the cause for this positive association. Thus, merely the large size of the household does not imply large number of dependents per earner, if the household belongs to a joint family with more number of earners and larger incomes, enabling higher PCPCE. Hence, an examination of dependency ratio becomes necessary before establishing positive association between rural poverty and size of household.

(ii) Dependency Burden and Rural Poverty: The dependency burden is expressed by a ratio of dependents to the total number of persons in the household. Generally, children below the age of 14, and the old and sick people are considered as dependents. The number of dependents reflects the burden borne by household as well as the degree of jointness. According to Gaiha, R. and Kazmi (12, 1982) the probability of a household's being poor is a logistic function of dependency variable which itself depends on the size of household, as well as on the square of the household size. In his another work, Gaiha, R. (11, 1988) has empiricaly established that probability of a household being poor increases as the size of the household increases. He also found a strong positive association between dependency burden (expressed by proportion of children below age of 14 years in total number of persons in the household), and rural poverty. He has also considered the age of household head and has established empirically, that, among the older age-groups the probability of being poor for corresponding household is more. These results relate to the income/expenditure definitions of poverty and for the year 1968–69.

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(d) *Employment Opportunities and Rural Poverty*: The number and proportion of rural households dependent on market earnings is large and rising. Majority of the rural poor belong to the group of landless labourers, artisans and marginal and small farmers, who largely depend on wage income. Obviously, low wages and inadequate employment opportunities aggravate the state of poverty in rural areas resulting in following characteristics.

(i) Higher Labour Earners Ratio: Various studies have empirically observed that the labour earners ratio, i.e., proportion of labourers in total number of earners, in poor households is very high. According to Dandekar and Rath, proportion of agricultural labour households in total has remained at 25% between 1956–57 and 1963–64. Out of these, 60% households depended entirely on the personal labour for livelihood, while remaining 40% had small pieces of land and so depended mostly on wage income. Moreover, 75% of these households worked as casual labourers while 25% were attached labourers. They also observed that the states with ⅓rd of rural households as labour households also suffered from high incidence of poverty in these years (e.g., Kerala, Tamilnadu, Andhra Pradesh, West Bengal, Bihar, Orissa, etc.).

Sundram and Tendulkar (13, 1988), while examining inter-regional variations in poverty (56 rural regions based on similar agro-climatic conditions, based on XXVII round of NSS, i.e. for 1972–73) observed that in 1977–78, around 37% of rural households belonged to labour households (out of which 29.88% were households of agricultural labourers and 6.88% were non-agricultural households). Around 58.76% of agricultural labourers households and 38.54% of non-agricultural labourers households were observed to have incomes below the poverty line. As regards their share in total rural households below poverty line, the estimates are around 44.28% and 6.69% respectively in 1977–78. It was further observed that the incidence of person day unemployment for agricultural and other labour household was 14.7% and 12.5% respectively while for females was 18% and 13% respectively.

(ii) Higher Participation Rate: Poor households in rural areas are further characterized by high participation rates, i.e., number of earners to number of adults is high. This is so, because they are forced to work in low-paid occupations and face frequent spells of unemployment and the institutional factors aggravate the situation further.

(iii) Higher Casual-Earners (Male) to Adults Ratio: The rural poor are further characterised by higher proportion of casual (male) workers to total workers. Though the daily wage rate enjoyed by casual workers is generally higher than that of permanent or attached farm workers, the total income earned by the former is smaller, because they work only during certain months of the year, while the latter earn larger incomes, as they work for the whole year.

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Sundram and Tendulkar (13, 1988) have observed that the proportion of casual labourers by main usual status in rural poverty was 58.65% for males and 61.4% for females. According to Minhas and Mazumdar (14, 1987) in 1983, about 18% of rural employees had job commitments as compared to 30% in 1972. Dandekar and Rath (10, 1971) have observed that the states having one-third of rural household as labour households, also suffered from high incidence of poverty (e.g. Kerala, Tamil Nadu, Andhra Pradesh, Bihar, West Bengal, Orissa, etc.

(iv) Higher Ratio of Female Earners to Male Earners: Due to inadequacy of earnings of male members, or their unemployment, the female members of poor families are forced to go out for work. This renders high ratio of female earners to male earners for poor households in rural areas. It has been observed that the tribal and poor peasant women have been significant providers of family subsistence, though facing great difficulties. The major sources of income for rural women are natural resources like forests, soil, water etc., and common properties. Hence, destruction of nature and reduction in access to common property by privatization is likely to aggravate rural poverty in India (15, 1989).

Agarwal Bina (15, 1989) has observed that rural women's dependency on wage earnings is very high. Female labour participation rate is found to be higher in poor families than the incidence of dowry, leading to lesser tendency towards discrimination against females among the rural poor. However, with a high rate of unemployment among females coupled with unrealisation and invisibility of productive work done by them, this tendency may be reversed.

Agarwal Bina further observed that there exist gender differentials in earning opportunities in rural areas. In spite of this, the proportion of women dependent on wage work doubled between 1960–61 to 1980–81. Women's daily earnings were less by 75% of male earnings as per the Report of Labour Enquiries. According to her findings, female earnings were around half of male earnings both in 1964–65 and 1974–75, while proportions of poor below poverty line were 50.4% and 47.6% respectively.

Due to the primary and often the sole responsibility of child care, women are less mobile. They are secluded also due to their vulnerability to caste/class related sexual abuses. Due to illiteracy, they are less informed about access to job opportunities. Women are also observed to remain confined to casual work, because of the nature of permanent jobs which require substitution of male workers by men in the family on the jobs like ploughing, market transactions, night operations (irrigation, guarding fields, etc.), leading to social exclusion of women from such permanent jobs. Introduction of productivity raising machinery results in replacement of women in such jobs, causing overcrowding of women in other jobs. Hence, she argues that due to gender differentials in employment opportu-

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nities and earnings, in access to ownership of land, etc. the incidence of unemployment and poverty in women is very high.

According to World Bank Report (6, 1989), rural women are generally engaged in specific operations like weeding, transplanting and head loading, while men specialize in digging and ploughing and other operations. Women are also involved heavily in household work, gathering and processing food and fuels and handicrafts. Thus, rural women are observed to be working 10–30% more hours than men per day (15A, 1988). However, in majority of the regions, male daily wage earnings exceed female earnings by 20.4% between 1970–71 and 1984–85. Though wages of both the male and female workers rose during this period, rise was much smaller for female than for male workers.

(v) The Vulnerability of Poor Women : Amongst the poor, women constitute an extremely vulnerable group and belong to poorest of the poor lot. The incidence of death, ill-health, malnutrition and poverty is found to be very high amongst poor women vis-a-vis men. According to World Bank Report (6, 1989), the incidence of malnutrition in the form of calorie deprivation and serious deficiencies in consumption of proteins and micronutrients such as ascorbic aid, calcium, iron, iodine etc. among young children and adolescent girls, pregnant and nursing women is most acute. Consequently, high mortallity and morbidity rates are observed among rural women.

To the above are added the disadvantages on account of gender inequalities in labour and asset markets which increase the dependence of rural women. Lack of access to institutional credit, means and opportunities to challenge legal, bureaucratic and customers conventions, literacy skills and knowhow, organising in a group etc. keeps women dependent on men and makes them more vulnerable to poverty (6, 1989). In short, sex biases against female in all respects are observed to be sharper and widespread, especially in rural areas (16, 1988).

(e) *Inadequate Education and Poverty* : The rural poor are further characterised by illiteracy, inadequate education and training facilities. Hence, they lack access to "highly-priced skills", leading to acceptance of low-paid jobs, low earnings, less awareness of new agricultural technology and poverty. Gaiha, R. (11, 1988) has observed that poverty is inversely related to education (above primary level for any member of family). Desrochers, J. and George Joseph (17, 1988) have observed that massive inequalities prevail in educational opportunities for male and female and privileged and the less privileged SC, ST groups of people. According to 1981 Census, the all India literacy rate for rural male and female stood around 40.18% and 18% respectively (29% for the whole rural population). Obviously, 60% male and 82% female in rural areas were illiterate. The proportions for male and female illiteracy for scheduled castes were 72% and 91.6% respectively, and for scheduled tribes, these were 77% and 93.2% respec-

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tively. Thus, illiteracy is observed to be higher among female and SC, ST groups, who belong to poorest of the poor lot, revealing sex and caste based inequalities as major factor leading to poverty. As per the recent estimates of 1991 Census, literacy rates for all India stands around 42.94% (52.68% for male and 32.52% for female). A very shocking observation made by N. Dave (18, 1991) is that the rise in literacy rate at all India level and for males between 1981–91 is smaller (6.71% and 5.79% respectively) than it was between 1971–81 (6.75% and 7.37% respectively). As regards females, there has been higher rise (7.7%) in the decade 1980–91 than during 1971–81 (6.12%).

(f) *Socio-Political Relations and Poverty*: The rural poor are characterized by the fact that they generally belong to the groups having low social, political and economic status and are therefore symbols of powerlessness. Factors like iliteracy, low earnings, landlessness, etc. make the poor economically weak and powerless. Since majority of the poor belong to SC and ST groups and women, who stand very low in social status, they have no social power too. Lack of economic and social power and status causes the failure of the rural poor in controling important events and maintaining contacts with others, aggravating poverty further (19, 1981). Obviously, the rural poor find no place in village Panchayats (20, 1982).

Isolation is another important feature of rural poverty. Since the major group of rural poor belongs to SC, ST, and Women Headed families, having low social status, they are isolated in terms of space, and live in houses which are generally away from the villages. Pramit Chaudhary (20, 1982) has pointed out that the rural poor, mainly the tribal and low-caste, are discriminated against in numerous ways, e.g., these are not allowed to fetch water from the wells of higher class people, are illiterate, immobile, scattered and highly indebted. These findings are also strengthened by Shergill, H. S. (21, 1989).

Due to powerlessness, the rural poor are unable to organise themselves. On the other hand, the big land-owners have powerful organisational strength and they not only constitute a class-in-itself, but also a class-for-itself. Most of the rural poor, mainly agricultural labourers, lack any consciousness of belonging to a class (22, 1989). Hence, they are unorganised and are unable to defend their own interests as a class. Though within the village they might have community feelings, they have no contacts with labourers belonging to other villages. This explains the wage differentials between neighbouring villages. Ashok Rudra (23, 1988) therefore comments, "Quite commonly, the situation is such that the labourers of one village would fight with any labourers of neighbouring villages who might think of "tresspassing into their reserved terrain". On the other hand, the socio-economic and political interests of the land-owner are homogeneous on a country-wide scale. They form ruling coalition which dominates the country and provides a good index of

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their organisational power as a class-for-itself. Since agricultural labourers are weak in bargaining power, their miseries get aggravated.

(g) *Economic Inequalities and Poverty*: The rural poor are also characterised by glaring economic inequalities, especially in earnings, employment, consumption and ownership of assets. As regards earnings and employment it has already been discussed earlier. Hence, we discuss below the other inequalities faced by the rural poor.

(i) Access to Ownership of Land and Other Assets : Natural resources and land are major productive assets in rural areas. Due to heavy pressure of population, there exists deficiency of these resources, causing low productivity of land and labour, both. Landlessness is therefore another important feature of rural poor. According to Sundrum, R. M. (24, 1987), the share of small, marginal submarginal farmers (categorized as holding land between 1 to 2 hectare, 0.5 to 1 hectare, 0.5 hectare and less than that respectively) and the landless rural population in land was 19.4% in 1975, with the small farmers having 12.4% and the others 7% in total. Moreover, 81.7% of landless, 75.4% of submarginal, 67.0% of marginal and 57% of small farmers' households were in poverty.

The share of lowest 30% of rural population in assets in 1961 was 2.5% which declined to 2.0% in 1971, while share of lowest 10% in asset remained same (0.1%) between 1961 and 1971. Thus, the evidence confirms that the rural poor are characterised by lack of ownership of land and other assets. The studies of Dandekar and Rath (10, 1971) and Vaidyanathan (25, 1974) also confirm these conclusions.

(ii) Consumption Inequalities : Rural poor are further characterised by low levels of income and consumption. The World Bank Study (6, 1989) shows that Monthly Per Capita Expenditure (Real, at 1970–71 prices) for the lowest 40% of rural population remained less than half of the population average for the whole country between 1970–71 to 1983. (Covers 25th to 38th NSS Rounds). Bhattacharya, etc. (26, 1988) have observed that SC and ST population gets only about 80% of per capita household consumption expenditure of general population in rural areas, while average for ST is smaller than for SC group. Moreover, the Lorenz ratios for the rural poor are relatively egalitarian, particularly for SC and ST groups. His results are based on 28th round of NSS. Similarly, Hanumantha, C.H., and others (27, 1986), have observed empirically that rural poverty ratio was greater in regions where proportion of SC and ST population was high.

These results are confirmed by the recent World Bank Study (6, 1989), which observed groupwise differences in monthly per capita expenditures (MPCE). The mean expenditure for rural scheduled castes and tribes was lower by 14% and 28% respectively than for the entire population in 1983. Such differences are large in South and East regions. It is further observed that agricultural labourers with tribal and scheduled caste

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background in Bihar, Orissa and Madhya Pradesh have especially low MPCE.

(iii) Vulnerability to Contingencies : The rural poor are extremely vulnerable to exogenous shocks like famines, floods, sickness, etc. and are subject to irreversible ratchets of impoverishment. Hence, they are forced to mortgage or sell whatever assets they possess, and incur huge debts (19, 1981).

(iv) Access to Common Property Resources (PRs) : It has been observed by Agarwal, Bina (15, 1989), Jodha, N.S. (28, 1986), and The World Bank Report (6, 1989), that CPRs accounted for a big share (15–23%) of income of the rural poor between 1982–85, while it accounted for 1.3% for the non-poor people. These CPRs comprise forests, pastures, woodlots, threshing grounds, river banks and beds, watershade catchments, drainage channels, ponds and tanks. The poor derive fuel, fodder, manure, silt, food, raw materials and marketable items from PRs. According to Jodha (28, 1986), CPRs had declined by 26.62% in survey villages between 1952–82 period. The Land Reform Policies and related schemes gave low income families legal title to such waste lands. Unauthorized encroachment by others of such CPRs also resulted in privatization of these CPRs. Thus, reduction in availability of CPRs by more than half has led to overuse of the remaining CPRs by the poor, resulting in degradation and decline in benefits.

(h) *Infrastructural Facilities and Poverty*: It is expected that the greater the availability of infrastructural facilities like transportation, storage, marketing, medical care, institutional credit facilities, education, health and sanitation, etc., the lower would be the incidence of poverty in rural areas. Hanumantha Rao, etc. (27, 1986) have empirically observed that canal irrigation facility and rural electrification work out to be poverty reducing factors. However, Desrochers, etc. (17, 1988) observe that relationship between poverty and both road facility and fertilizer use were doubtful. They have further observed that only 0.5% rural population in 1981 had access to sanitation facilities, 30.9% had access to safe drinking water supply, and 70% of rural agricultural households were indebted, pauperising rural poor further due to credit tied labour contact system prevalent in rural areas.

(i) *Regional Variations in Rural Poverty*: As noted earlier, various experts have pinpointed regional variations in rural poverty in India. These results are further confirmed by World Bank Study (6, 1989), which observed that Eastern Region, which is economically and socially backward not only suffered from lowest per capita income but also had largest proportion of population below poverty line in 1970, 1983 and 1988. The richest states of North West region, Punjab, Haryana, etc. experienced lowest incidence of poverty during these years.

Another important observation of the study is that the poverty ratio

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declined in all the regions (Except in East where it rose between 1970–83). Moreover, poverty has been reduced at much faster rate in rich North-Eastern areas than in other regions. Thus, poverty is regionally concentrating in poor and socially backward regions of the country.

(j) *Duration of Poverty*: It is generally believed that poverty is virtually a permanent phenomenon for households observed to be poor at one point of time. However, this needs to be empirically proved.

5. Conclusion

The above given discussion on rural poverty in India brings out clearly the following points:

(i) It is quite difficult to arrive at a precise definition of poverty as it involves various aspects. However, there is a need to revise the conventional definition of poverty line.

(ii) In spite of various rural development programmes implemented during planning, a large number (252 million people) and proportion 41.7%) of rural population in India is still suffering from abject poverty in 1988.

(iii) The nature of rural poverty is cyclical and is explained by various factors like fluctuations in agricultural production, prices, etc.

(iv) The rural poor in India are characterised by large family size, heavy dependency burden, low earnings jobs, higher labour earners ratio, higher labour participation rate, large proportion of casual labourers and females in total labourers, etc. The other features of rural poor are illiteracy, low economic and socio-political status resulting in isolation, lack of organisational skill, lack of access to land and infrastructural facilities. Moreover, the rural poor mostly comprise of SC, ST groups and women headed families.

(v) Such high estimates of rural poverty in India, even in the year 1988 Chambers' (19, 1981), following aspects are considered for a developing country like India.

(a) Spatial biases of urban educated researchers for choosing roadside area for study, revealing less poverty as the poor live outside the villages, away from roads.

(b) Personal biases on account of researchers being more in contact with rich, influential land owner class, than with SC, ST and poor women group, hence, not enabling them to capture the reality fully.

(c) Project biases are caused due to neglect of areas not covered in the project.

(d) Dry season biases indicate the researchers choice of visiting the rural areas during dry season rather than wet, lean, hungry sick periods. The latter periods imply more and acute poverty than the former.

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(e) Politeness and timidity keep them away from meeting the very poor.

(f) Professional biases induce them to reveal the picture of rural poverty only partially.

(vi) Finally, a recent fall in poverty ratio between 1970 to 1988 (6, 1989), reflects the positive effect of rural development programmes adopted by the Government. However, these need to be made more target oriented and implemented more effectively.

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BOOK REVIEW

UNEQUAL EXCHANGE AND THE EVOLUTION OF THE WORLD SYSTEM (Reconsidering the Impact of Trade on North-South Relations)

by KUNIBERT RAFFER (University of Vienna); Macmillan Press Ltd., London, 1987; pp. 301.

Reviewed by Dr. U. N. LAKSHMAN, Former Post-Doctoral Research Fellow, ICSSR, New Delhi and Reader in Banking, University of Mysore, Mysore–6.

Here is a book which presents a historical review and complications in trade through unequal exchange. Unequal exchange is a relatively new phenomenon in international economic relations, since its existence is based on conditions that have only been met during a certain phase of the development of the world system. In the introduction the author explains that all the countries that initially had fought for the free trade doctrine changed their attitudes once they themselves had reached economic power, preaching the doctrine to the countries now dependent on others. Keynes's dictum thus applies to Adam Smith : "England had Smith when England could afford him." H. G. Johnson described U.S. Trade business which nullifies any comparative advantage of any country in the world. During the colonial phase, exploitation was not effected by trade, at least not in the way trade with the periphery functions now-a-days. The name "peripheral countries" has been used in the book, since the expression does not transport the ideology that these countries will develop like North in the near future.

Chapter 2 entitled "Early Thoughts on Inequality and Domination by Trade" explains the opinions of Adm Smith, Ricardo, Jan Otto Anderson and Stuart Mill. The author of this book points out (on p. 38) that Marx's followers have always tried to point out that the "master" himself had already made substantial contributions to the field of international trade, though he neither wrote a book nor devoted a chapter in his work on this topic. Kholmey's theory of international trade and international values is a theory of unequal exchange. According to Kholmey the more productive country always enjoys an absolute advantage vis-a-vis the less productive country. International trade produces cumulative processes of unequal development, while comparative advantages work more or less in the way Myrdal's spread-effects do.

In Chapter 3 entitled "Emmanuel's Approach to Unequal Exchange", Emmanuel allows different rates of profits in the centre and the periphery. Emmanuel explains that unequal exchange is inequality in wages. For

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him development is a matter accumulation and business of profits. High wages offer good opportunities for investment, and only if these are made will development follow. Historically, Emmanuel claims that there is no case where high wage countries did not develop. This has been supported by a recent research of Dieter Senghaas. The difference between Emmanuel and Lewis on wages is: for Emmanuel wage is a factor of production and for Lewis wage is an increase in productivity of labour in agriculture. In measuring unequal exchange, productivity plays a role, since Emmanuel's numeraire (labour-units) is homogeneous.

Chapter 4 entitled "Critiques and Further Elaboration of Emmanuel's Approach" explains the criticisms made by eminent authors. Van de Klundert says in a strange way Emmanuel attaches importance to the introduction of fixed capital than to correct a solution to the transformation problem. Van de Klundert also touches on the unemployment problem which Emmanuel rather neglects. Emmanuel also failed to discuss the balance of payments.

Chapter 5 entitled "Oscar Braun's Approach to Unequal Exchange" besides pointing out the four periods of North-South relations (p. 74), one can observe that Braun has a dependista understanding of the international economy. Braun inverts Emmanuel's argument by not accepting wages but prices as the independent variable. This inversion of causality vis-a-vis Emmanuel is one of Braun's major points. Braun criticises Emmanuel by mentioning two shortcomings of his model, namely:

(a) Why capital is not flowing massively to the Third World.
(b) Why Southern elites do not simply provoke increases in wages or export prices to counteract unequal exchange.

Braun concedes that the South has no power in negotiations because it has no power to retaliate. Therefore, trade liberalisation is mostly effected between the countries of the centre. Equal exchange in Braun's sense would be exchange at "natural prices of production". Oscar Braun holds the Latin American view where British portfolio investments did play an important role, much more than in most other parts of the world (Braun's home country is Argentina):

Chapter 6 entitled "Samir Amin and other contributions to the Debate" introduces materialism as his method of analysis. Amin looks for a definition of unequal exchange but covers all modes of production. He defines exchange as unequal if and whenever labour of the same productivity is rewarded at a lower rate in the periphery. With regard to wages after Second World War, Amin sees a social contract of a social democratic type which by increasing real wages kept the system going. If real wages do not follow technical progress the system has to look for other consumption of real wages for the evolution of capitalism is concerned. In assessing unequal exchange, Amin sees the problem of

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comparing real wages internationally. To do so, internationalisation of wage goods is necessary, otherwise national systems would remain separated from each other. Saigal is not clear about his unequal exchange scheme.

Chapter 7, entitled "Specialisation and Dependence: A New Approach" explains that unequal exchange takes place whenever and wherever equation does not hold. The situation of North-South exchange has been characterised on p. 114 and p. 115. By using simple mathematical equations the author explains the necessity to achieve a given level of foreign exchange either to finance necessary imports or to honour debts. The periphery, having specialised on its traditional exports, has to import those goods that are necessary for reproduction from the centre.

Chapter 8 entitled "Unequal Exchange—A Stage in the Evolution of the World System" explains that the unequal exchange presupposes a will to trade. This chapter analyses how the present North-South global economy came into being. The auhtor traces the history by taking the studies made by Wirz, Alavi, Bergmiller, Schindlecker, Lanning and Muller, Frank, Brown, Elsenhans, List Mill and Hegel. The author presented a list of events right from slaves to steam engine of James Watt. The author is very critical about the attitude of North throughout the history. He also mentions how local culture was destroyed or prohibited by emphasising the privileges given by colonial administration to some of the people. The eradication of local traditions and the implantation of Northern attitude has not only changed the society but also made the Northern culture a prestigious one. Nurkse has shown how the Demonstration effect has changed the southern culture. The wish to consume like the rich nations leads to balance of payments problem. Income differences and international communications are responsible for this type of consumption. The dependence of South on North is due to Trade, Finance, Technology, Marketing Structure and Culture. The international financial institutions advocated free trade and comparative advantage, Gone are the days of Independence and dependence. Today it is interdependence.

Chapter 9 entitled "OPEC and Breaking of Third World Economic Power" explains that like any other science, economic and development research have their own legends and fairy tales and the example is oil, OPEC and Third World power. The oil made the world to reverse the position. Oil shows that industrialised countries too are dependent on the South. Oil shocks and oil crises prove it. The author is very critical about the U.S. Policy of preserving its own oil, and encouraging OPEC to produce more by promising hike in prices of oil.

Chapter 10 entitled "Where does Unequal Exchange Occur" explains that unequal exchange occurs where labour or goods are exported, i.e., sold

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to the TNC. Between North and South unequal exchange occurs when a product leaves the periphery.

Chapter 11 entitled "Problems of Measuring Unequal Exchange and the Specificity of Goods" says the problems of measurement of unequal exchange are of two types, namely, the measurement of non-equivalence and the measurement of the index of specificities of goods. Measuring non-equivalence is easy as far as modern wages and salaries are concerned and industrial production is measured. Further, it is not possible to determine when and whether non-equivalence is disappearing because data available on productivities, nominal wages and prices, working conditions show that non-equivalence exists, although precise statistical methods of measuring are still lacking. The most difficult area in quantifying unequal exchange is Mining. In total, this paper summarises the ideas as to how unequal exchange and its mechanisms should be measured.

Chapter 12 entitled "Unequal Exchange and the Re-deployment of Industries" emphasises the necessity to restructure the production facilities or what is normally called redeployment due to existence of unequal exchange. Though various economists argue that the deployment of capital is good, yet some argue that such deployment creates jobs in the North and losses in the South. In fact this is one of the major benefits to the donors of aid. The author questions : Is the periphery responsible for these problems or are there other reasons? The answer has been given by various conferences like UNIDO, LIMA, UNCTC. However, it should be observed that global shifts in production structures do not take place without government policies. With regard to jobs the question is : Is foreign investment a job-killer or job-creator? The chapter has made a fine analysis on the effect of job gains and losses due to structural change and foreign investment. P. 232 provides a table to show the analysis of sources of employment change in manufacturing in Germany, the best researched country on this topic. P. 235 shows the evolution of indirect exports of Japan.

Chapter 13 entitled "The Necessity of Realisation and the Role of the Central State as Limiting Factors to the Spread of Unequal Exchange" raises the question as to how to realise the gains in the unequal exchange situation. The chapter explains the role of governments in the evolution of global economic system and protectionism.

Chapter 14 entitled "Structural Changes in the World Economy: Conclusions and Prospects" starts that the chapter stating the historical evolution of North-South relations is the history of unequal partners. The chapter traces the history how the North exploited labour, raw material and even people right from centuries to their advantage. The author suggests the following conditions for the South to overcome the dependency:

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(1) Counteracting food dependence; (2) Building up one's own balanced economy; (3) Selective cooperation; (4) Participation in international decisions, (5) Maintaining cultural identity. The chapter concludes by criticising the elite of the poor countries like this:

> "A ruling class determined to develop the country should use the money earned by exports in a judicious way."

But the present elite mostly do not even try to use the small room for manoeuvering they have. At present, they are only "Nationalistic" in the sense that they will always be ready to brandish the flag if they believe that it has a blackmail effect, and to put the flag in cold storage for a price." Free trade theory is much alive and has become a welcome argument for those that are quite protectionist themselves.

To understand this book one needs a vast reading in economics and different authors' opinion on the subject. In this book what has been advocated is a kind of economic discipline, which is all very well but one is left wondering after perusing the book whether many of the suggestions would become real. It is easier said than done. The book instead of finding solutions finds out historical problems. The author quotes different authors in different places and the result is confusion to the reader. One distinguishing feature of the study is its impartial analysis without any fear or favour. The distinguished professor has not presented any specific judgement regarding questions he has raised in the book though he did mention some of his opinions. This book will be of immense use to research students in trade and interrelated topics.

FINANCING PUBLIC SECTOR DEVELOPMENT EXPENDITURE IN SELECTED COUNTRIES (BANGLADESH)

By ABDUL GHAFAR and OMAR H. CHOWDHURY, Asian Development Bank, Manila, Philippines, 1988; pp. 90.

Reviewed by Dr. SUCHITRA KUMAR, Research Associate, National Centre for Management Development in Agricultural and Rural Development. Padmanabhnagar, Bangalore–50.

This case study is an outcome of a workshop held at Manila during 15–16 May 1986 to discuss the objectives, scope and methodologies of the study, and to prepare an outline of the country study. This is a part of the study on financing public sector development expenditure in selected

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developing member countries (DMCs) of the Asian Development Bank carried out during 1986/87.

The primary objectives of the study were to review the performance of the public sector during the decade ended in 1985, analyse the nature of the resource constraints confronting the DMCs; identify the factors which have been at work in adversely affecting the public sector saving, and examine the various approaches for improving the saving performance of the sector.

The study is divided into 4 chapters. Chapter I deals with the resource gap and its economic impact. Planning in Bangladesh consists essentially of generation of savings in the public sector, mobilization of foreign aid and allocation of these resources. Due to the slow growth of foreign aid a vigorous drive for layer savings in the public sector becomes crucial. In this chapter the various aspects of financing public sector development expenditure has been examined. A detailed analysis of the structure and trend of both tax and non-tax revenue as well as recurring expenditure has been attempted. Besides this the performance of the public sector enterprises with respect to saving investment is analysed. The extent and role of other major sources of financing public sector expenditure viz., foreign aid and domestic borrowing has also been dealt with.

Chapter II deals with an analysis of the Government budget wherein the trends in budgetary agggregates and income elasticity of budget aggregates are discussed besides a review of tax structure and non-tax revenue sources is made. The tax structure of Bangladesh and its changes over the late seventies and early eighties are also discussed. A detailed analysis of the revenue productivity of the Bangladesh tax system is made. For this estimates of the buoyancies and built-in elasticities of the various components of tax revenues in Bangladesh with respect to GDP are provided and used.

The elasticity of tax is influenced by many factors, such as the composition of bases, economic growth and distribution of income. Hence further analysis of the size of elasticity is necessary to get insight into the causes of the growth of revenue productivity.

By fitting separate regressions of each tax component on its base and of the base on income such further information for the analysis can be provided.

Tax effort of Bangladesh is low compared even to the low income countries of the region and has increased only marginally since the mid 1960's. Various issues are discussed in this context. Besides these, this chapter also deals with the structure of non-tax revenue, current expenditure, elasticity of public expenditure and sources of capital budget. An analysis of current government expenditure is also undertaken.

Chapter III deals with the overall performance of the public sector

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enterprises. This study is limited to the analysis of 13 Non-Financial Public Enterprises (NFPEs) 5 in manufacturing, 3 in power, gas and water, 3 in transport, storage and communication and 2 in trade.

The final chapter, viz., Chapter IV, deals with the conclusions and recommendations of the study. Specific measures are suggested in respect of tax, revenue and expenditure. The structure of public sector revenue and expenditure and some of the areas where improvements can be made were discussed. Whereas it is difficult to change many policies due to political constraints, there are other areas where the effective barriers to change are lack of resources and expertise. Hence it is recommended that the Asian Development Bank, as one of the leading international finance institutions, can help the government in the latter situations. Some of the areas in which the aid donors, particularly the ADB, can contribute are discussed.

This excellent work undertaken by Asian Development Bank is very useful and interesting.

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